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ANNUAL
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FORTY-FIRST REPORT

OF

THE COUNCIL

OF THE

LEEDS

PHILOSOPHICAL AND LITERARY SOCIETY,

AT THE CLOSE OF THE SESSION,

1860-61,

Read at the Annual Meeting, May 7th, 1861.

LEEDS:
PRINTED BY C. KEMPLAY, INTELLIGENCER OFFICE.
MDCCCLXI.

IMPORTANT RULE

RESPECTING THE PROPERTY OF THE SOCIETY,

PASSED OCTOBER 8th, 1860.

That in the event of the dissolution of this Society, its Property and Effects, whether real or personal, shall not be disposed of for the personal benefit of the Members, but shall be appropriated in such manner for the advancement of Science, Literature, or Art, in the town of Leeds, as shall be determined by a majority of the Members, at an Extraordinary Meeting to be convened for that purpose. But that no dissolution of the Society shall take place without the consent, in writing, of a majority holding not less than two-thirds of the Proprietary Shares.

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26.9.55

FORM OF A BEQUEST TO THE SOCIETY.

Every person desirous of bequeathing to the Society any Sum of Money, Specimens, Books, Instruments, or other Property, is requested to make use of the following Form:—

I give and bequeath to the Trustees for the time being, of the Society established at Leeds, called "THE LEEDS PHILOSOPHICAL AND LITERARY SOCIETY," *for the use of the said Society, the sum of to be paid out of such part of my personal Estate as I may legally charge therewith.* [Or here enumerate the Effects or Property intended to be bequeathed.] *And I direct that the Receipt of the Treasurer of the said Society for the time being, shall be an effectual discharge to my Executors for the said Legacy.*

REPORT OF THE COUNCIL

AT THE CLOSE OF THE

FORTY-FIRST SESSION,

MAY 1, 1861.

Your Council have great pleasure in reporting the steadily advancing prosperity of this Institution in every department. Since the conclusion of the last Session their attention has been occupied in considering and carrying into effect measures of the utmost importance, in reference to its future stability and welfare.

It has of late years been generally regretted that the property of the Society had not been placed upon a more satisfactory basis, and especially that our fine Museum had not been more securely localized, and protected from the possible contingency of future dispersion. Your Council have reason to suspect that the generous intentions of some of our patriotic friends may have been seriously influenced by such considerations. Indeed it seemed unreasonable to suppose that the donations or bequests of our fellow-citizens should not have been occasionally with-

held by the reflection that such contributions could only serve ultimately to enhance the value of the property of the original share-holders.

These obstructions to the advancement and extension of our Institution could only be removed by a fundamental change in its constitutions and laws. Your Council therefore resolved to bring this affair before the Members of the Society. Accordingly a Special General Meeting was convened on the 24th of September last, when the following resolution was submitted, and carried, viz. :—

> "It is desirable that, in the event of the dissolution of this Society, its property and effects, whether real or personal, shall not be disposed of for the personal benefit of the members; but shall be appropriated in such manner for the advancement of Science, Literature, or Art, in the town of Leeds, as shall be determined by a majority of the Members, at an Extraordinary Meeting to be convened for that purpose. But that no dissolution of the Society shall take place without the consent, in writing, of a majority holding not less than two-thirds of the Proprietary Shares. This rule to be binding on all Proprietary and Ordinary Members who may be admitted at this or any future Meeting; and the present Proprietary and Ordinary Members also to be requested to sign an engagement conformably thereto."

By the adoption of this important resolution, your valuable Museum, with the property and effects of this Society, have now become, in fact, a Public Institution, securely and permanently localized in the borough of Leeds.

The attention of this Society was earnestly called, in the last Annual Report, to the urgent necessity of

providing increased accommodation for the Museum, Lecture Theatre, and Library. This engrossing subject has continually occupied the thoughts of your Council. During the recess several Meetings were held to consider the question in all its aspects, and it was ultimately determined that it would be exceedingly advantageous to this institution, (especially considering its admirable and central situation) to purchase, if possible, the adjoining warehouse, and add it to the present building. By this enlargement of our premises, an architectural uniformity of the exterior, splendid apartments for our Museum and Library, and a spacious and undisturbed Lecture Theatre could be obtained; while, by the alteration of the present Lecture Room, a convenient entrance from Park Row, and a respectable vestibule and stair-case, with many other minor but essential accommodations, could be provided for. This would afford nearly as complete and useful a suite of apartments for all the requirements of the Society as could be procured by the erection of a new building, and at much less expense and inconvenience. These important matters were likewise submitted to a Special General Meeting, and it was then determined to make an effort to raise the funds necessary to carry the suggestions of your Council into effect. It was accordingly resolved, at the Special General Meeting,

1. "That the Proprietary Capital of the Leeds Philosophical and Literary Society be increased by an additional sum of £10,000, to be raised by voluntary contributions, and by shares of £50.

Each holder of one or more of such shares to be constituted a Proprietary Member, with similar rights and privileges as the Old Proprietary Members, with the exception of his being required to pay One Guinea annually in virtue of each such share of which he shall avail himself of the privileges."

It was subsequently resolved, at the same General Meeting,

2. "That a new order of Ordinary Members be instituted, who shall hold a transferable share of £20, and pay the sum of One Guinea annually, subject to the condition of the above resolution."

The Council beg leave to congratulate this Meeting upon the successful operation of these great changes in the organization of the Society.

In order to carry out the proposed arrangements, a Committee was elected (of which Mr. Wm. Gott was appointed Chairman) composed of the Members of the Council, and the following gentlemen associated with them, viz.:—Mr. Arthur Lupton, Mr. John Rhodes, Mr. T. T. Dibb, and Mr. William Best. These gentlemen undertook the onerous and sometimes disagreeable duty of soliciting subscriptions to the required fund, either by written or personal application, and it is only due to them to state that, owing to their indefatigable exertions, the munificent sum of £7132. 5s. has been already contributed, as will be seen from the annexed subscription list.

The Council, however, regret to inform this Meeting, that, owing to a very considerable discrepancy between the estimates of the architect and the tenders of the contractors, even this large sum is now found insufficient for the

completion of the approved plans, and the internal fittings. They have been therefore again reluctantly compelled to come before another General Meeting of the Members of the Society, and ask for their instruction and authority for further proceeding in this dilemma. Accordingly a Special General Meeting was held on the 8th of April, when it was resolved, That the original approved plans should still be carried out if possible, and that the extra sum now discovered to be required for that purpose should be raised by further voluntary contributions, not to be paid before January, 1862, and then only in the event of the sum of £1500 being obtained by the 1st July.

The additional amount thus obtained is now £1220, as shewn in the new supplementary subscription list; and the Council anxiously hope that the small deficit, which still remains, may be raised before the 1st of July.*

We have thus advanced in this important undertaking far beyond the anticipations of the most sanguine friends of the Society, and at a time when numerous other appeals are urgently pressed upon public sympathy and support, and we confidently trust that the noble exertions which have been made for securing the future stability and prosperity of the oldest Philosophical Society in the county of York, will not be allowed to fail for want of this comparatively small sum; for we feel convinced that if this great project is not carried out now, when it

* This anticipation, the Council are happy to state, has been realized. June 26th, 1861.

has been so prosperously brought to this point, it will be in vain to anticipate a more favourable opportunity at any future time.

Our annual financial state is unusually prosperous, as will be shewn by the fact that the balance in our treasurer's hands amounts to the sum of £303, although from accidental causes it became necessary to expend during the past year a considerable amount in the purchase of Specimens for the Museum. There is no doubt that much of this satisfactory condition of our annual resources is mainly owing to the recent change in the constitution of our Society, by which already 99 shares for new Proprietary, and 106 shares for new Ordinary Members, have been added to our numbers. However, we must deduct from this large accession of yearly income a loss of £39, in consequence of this number of our old Ordinary Members having taken £20 Shares, by which their yearly Subscription is lessened by £1. 1s. This comparatively trifling loss is amply compensated, for by this means the large sum of £728 has been aleady obtained for the building fund.

We may also reasonably anticipate a considerable accession to our Annual Subscribers, when the large number of Shares still undisposed of, shall have been transferred from time to time from the present holders to new proprietors. In addition to these new Proprietary and Ordinary Members, three new Ordinary Members, under the old regulation, and twenty-three Annual

Subscribers, have been elected this year. It is therefore now no longer possible to afford even standing room in this inconvenient Theatre for all our Members, exclusive of the friends whom they are entitled to introduce on lecture nights.

PAPERS AND LECTURES.

The Papers on the Sessional Card have been, as of late years, of a high character, and unusual interest; and as most of them were read by men of acknowledged scientific or literary reputation, they were attended by numerous and gratified audiences.

In the month of May an extra Sessional Lecture was delivered by Professor H. D. Rogers, of the University of Glasgow, "On Coal, and its uses." This Lecture (as it was to be expected from the high character of this distinguished philosopher, especially in his own department of geology) was unusually instructive.

1. The Introductory Paper of the Session was read by our President, the Rev. Alfred Barry, "On the Tudor Period and its recent Historians," on the 16th October, 1860.

2. The next Paper was read the 30th of October, 1860, by one of your Honorary Secretaries, Mr. O'Callaghan, "On the Pre-historic Condition of the British Islands, and their Inhabitants," illustrated with numerous Original Drawings.

3. On the 6th of November, 1860, Captain Blakely, Royal Artillery, read a very interesting Paper "On the recent Improvements in Fire Arms." Several of the Volunteer Rifles were present by special invitation on this occasion.

4. Mr. Bloxham, the well-known author of The Principles of Gothic Architecture, read a characteristic Paper "On Kirkstall Abbey," on the 22nd November, 1860.

5. The Fifth Sessional Paper was read on the 4th December, by Captain Sherard Osborn, R. N. C. B., "On Northern China considered Geographically and Commercially." The high position and reputation of this distinguished officer, in connection with the then engrossing subject of his Paper, attracted a crowded audience, who appeared to be deeply interested, and usefully instructed.

6. The last Paper of the year was read by Professor H. D. Rogers, "On the reported Traces of Primeval Man." As this has now become one of the most popular subjects of the day, the Paper was of course unusually attractive and instructive, especially as it was illustrated by appropriate Diagrams, and large Drawings of Sections of Geological Strata.

7. On the 15th of January, 1861, the Rev. Professor Temple Chevalier, of the University of Durham, gave us an account of "The recent Total Eclipse of the Sun, as observed in Spain." As the Rev. Professor of Astronomy was personally engaged in these interesting observations, this lecture was exceedingly instructive.

8. On the 29th of January, that distinguished Arctic Navigator, Rear Admiral Sir Edward Belcher, C. B, read a Paper "On the Nations inhabiting the Arctic Regions of North America; their habits, customs, weapons, implements, &c., &c.," to a gratified audience.

9. The Rev. Thomas Hincks, B.A., one of our Honorary Curators, read a very interesting Zoological Paper, entitled "The Story of a Life." This was an original communication of great value, in that department of Natural History to which it referred.

10. The Rev. Edward Monro, Vicar of St. John's, Leeds, read a Paper on the 5th of March; subject, "Tennyson's Idyls of the King, as applied to the present Condition of English Society."

11. In consequence of a serious accident, the Society were unexpectedly deprived of a valuable Paper from Mr. Hopkins, of the University

of Cambridge, which he intended to present to the Council for publication. It is to be hoped that this original communication is only deferred till the next Session. However, the evening set apart for this Paper, (19th of March,) was not lost to the Society, for Mr. Thomas Marshall, one of the Members of our Council, kindly undertook (at short notice) to read a Paper "On Progress and Improvement, their Relations and Contrasts." This was the second occasion on which our friend, Mr. Marshall, volunteered to extricate us from a similar difficulty, and we feel assured that this Society will gratefully appreciate his opportune and valuable services.

12. The last Paper of the Session was one of extreme interest and originality. It was read by Professor Robert Hunt, F.R.S., of the Government School of Mines, on the 2nd of April. The subject, "The Phenomena of Mineral Lodes," was one with which he is especially conversant; and, as the Paper was Illustrated with beautiful Diagrams and Drawings, it was exceedingly attractive.

CONVERSAZIONE.

The Annual Conversazione was held on the 5th of February. On this occasion a most valuable communication from Professor Seyffarth, of St. Louis, U.S., "On the Leeds Mummy," was read by our honorary secretary, Mr. O'Callaghan. In this important paper the learned Professor appears to have demonstrated from the astronomical configurations, and inscriptions on the coffin, that we have now in our Museum, the oldest human body in existence of which there is any accurate record. It would be impossible to do justice to so valuable a paper, in the brief space allowed for such notices in the Annual Report.

A second Paper was read on the same evening, by Mr. Thos. Stansfeld, one of the Members of our Council, for Mr. Edmund Waterton, of Walton Hall. This interesting Paper "On the Wedding Ring" was illustrated by an appropriate exhibition of rare and valuable rings from Mr. Waterton's curious collection.

The apartments of the Museum were thrown open as usual on this occasion, and many beautiful paintings and drawings of local and other artists, besides numerous exquisite photographic pictures, kindly lent for this purpose, afforded much gratification to our visitors. A model of Train's Street Railway Carriage, also an Hydraulic Fire Escape, specimens illustrating a new process of Photography on glass and porcelain, various articles manufactured from ebonite, and a variety of articles of Indian manufacture, with several other objects too numerous to mention in detail, served to diversify this intellectual entertainment.

JUVENILE LECTURES.

The annual course of Christmas Juvenile Lectures was most obligingly delivered by Mr. Richard Reynolds, our fellow-townsman, and a useful member of this Society. The subject "Our Food from Plants," was admirably illustrated by a great variety of food plants, diagrams, and

beautiful experiments. The Council feel that they owe it to Mr. Reynolds to record on this public occasion, their grateful sense of the useful instruction to old and young, imparted by these highly scientific and practical lectures.

MUSEUM.

This most important department of our institution, is steadily increasing in usefulness and public favour. Last year your Council had the satisfaction of announcing, in their Report, an extraordinary increase in the number of penny visitors, 13,500 such persons having passed through the Museum in the course of the season. This year, however, even that large number has been exceeded by no less than 3000! They look forward, therefore, with pleasing anticipation to the proper arrangement and display of this noble collection in a suitable repository, where it will become not only an attractive place of amusement and agreeable instruction to the vast population of Leeds, and the surrounding neighbourhood, but a source of pride and profit to the Society. For it is certain to become (even by the nominal charge of a penny for admission) in a very short time, an inexpensive, if not

altogether a self-supporting establishment. In our Report of last year, fears were expressed that a collection made for the Museum, at Borneo, by our late lamented correspondent, Mr. James Motley, was probably lost in the fatal insurrection which deprived us of his valuable services for evermore. Fortunately, however, the packages containing this splendid donation were despatched previously to this deplorable event; and after a long detention in a Dutch custom-house, they have arrived at their intended destination at last. By this unlucky occurrence however the boxes were opened, and several specimens abstracted, including an Orang Outan. This collection, which may be called the last bequest of our departed friend, consists of 185 rare Birds, the curious little Bornean Bear, fine Skulls of the Wild Boar and Kajung, several beautiful Monkeys and Squirrels, and a series of Fossils from the Bornean Coal Fields. In addition to this great contribution from Borneo, Mr. Lewis, L. Dillwyn, M.P. for Swansea, has most generously presented us with another valuable collection, made also by Mr. Motley, consisting of an enormous Orang Outan, and two large Skulls of the same creature, a magnificent specimen of the Manis, several rare Monkeys, Otters, and Cats, a Skin and three Skulls of the Alligator, two Skulls of the Water Buck, besides a great variety of beautiful Birds. In grateful recognition of this munificent donation, Mr. Dillwyn has been elected an Honorary Member of our Society.

Our kind friend Mr. William Boyne, has, with his usual liberality, purchased and presented to us, a very fine Skull and preserved Head and Leg of the Rhinoceros Bicornis of South Africa, a Skull of a Female African Elephant, a Lower Jaw of the Asiatic Elephant, and a Skull of the Spotted Hyæna.

These valuable specimens in addition to the opportune purchase of a Skull of the Sumatran Rhinoceros, and the Horns of the Rhinoceros Keitloa, and the Skull of the Phacochœrus Æliani have supplied us with most useful illustrations of the order Pachydermata, of which our Museum now contains examples of every known genus.

Our late respected President, the Dean of Chichester, by a portion of his munificent pecuniary donation, has enabled us to secure a very large and beautiful Spiny Echidna, by which the Society is now in possession of the only two species known of this important genus. Also splendid Skulls of the Gavial of the Ganges, the narrow nosed and common Crocodiles of Borneo, some rare species of Quadrumana, several Foreign Birds, and a remarkably fine Femur of the Mammoth from Lowestoff.

Our Vice President, Mr. T. P. Teale, has kindly presented us with a magnificent Jaw of the Sperm Whale, 18 feet long, which has been placed for the present in the Vestibule of our Hall.

During the past session (as previously observed,) an unusually large expenditure has occurred in this department, for the purchase, setting up, and preservation of specimens. This accidental increase has taken place in consequence of opportunities having presented themselves, by which very important acquisitions were thus obtained. From the sale at the United Service Museum in London, last summer, some very valuable specimens were purchased, which have long been desiderata in our collection. A series of rare Bornean specimens, were likewise purchased from the family of poor Mr. Motley, which will now have an especial interest.

A fine specimen of the Chimpansee having died in this neighbourhood, it was immediately secured at a comparatively low price, so that with the Orang Outan presented to us by Mr. Dillwyn, we have now two of the three species of Anthropomorphous Apes. Thus leaving the Gorilla still as a desideratum, which we must beg of our friends to bear in mind.

From the Liverpool Free Museum, we have procured by exchange, some valuable specimens, amongst them that interesting marsupial animal, the Myrmecobius Fasciatus, The Dasypus Tricinctus, and Minutus, and two rare Hornbills. The Right Honourable Earl de Grey and Ripon has kindly presented us with a fine specimen of the American Wild Turkey, and the Marquis of

Breadalbane has given us a splendid pair of Capercailzies, bred upon his Lordship's domain at Taymouth Castle.

Our collection of British Fishes has been enriched by an unusually large specimen of the Short Sun Fish, caught upon the Yorkshire Coast.

Our friend and fellow-townsman Mr. Edward Atkinson, has presented us with a fine Skull and Horns of the Syrian Ibex, a specimen of the Aspalax of Syria, together with several Reptiles and Insects from Palestine. The latter are especially interesting as illustrating the extensive Geographical distribution of many species, well known as indigenous in the British Islands.

A second exploration of the Dowkerbottom Cave, in which our curator Mr. Denny, discovered so many objects of interest last year, has been made by Mr. James Farrer, M.P., of Ingleborough House, during the recess. Several additional Antiquarian Relics, both British and Roman, were thus obtained; also some curious animal remains. The most valuable of the latter was a portion of the Skull and Horns of a mature Roebuck, which exhibits the first specimen on record of that ruminant having occurred in a fossil state in Yorkshire.

An accession to our shell collection has been received as a donation from Rear Admiral Sir Edward Belcher. Those from the Arctic Regions, are especially interesting.

The other minor additions to the Museum are too numerous to notice in this Report, especially as they will appear in detail in the usual annual list of donations.

LIBRARY.

The principal additions to the Library by donations during the past year, consist of "Reports of the British Association for the Advancement of Science," 26 vols., 8vo. Presented by the Council of that body.

The "Geology of Pensylvania and Government Survey by Professor H. D. Rogers," a very expensive book, 3 vols., 4to. Presented by our liberal friend Mr. John Rhodes.

Pitisci's "Lexicon Antiquitatum Romanorum." Presented by our old friend Mr. William Boyne.

The "Meteorological Papers." Published by authority of the Board of Trade, 1846-61. Presented by Rear Admirable Fitzroy.

"Magnetic and Meteorological Observations at St. Helena," 1846 to 1859. Presented to us by the Government.

The Proceedings of the Academies of Stockholm, Philadelphia, and St. Louis. The Transactions of the

"American Philosophical Society," "Boston Natural History Society," and various Literary and Scientific Societies of Great Britain and Ireland.

These contributions however are not so numerous as last year, but when the projected alterations in our building shall have been completed, and the Society become possessed of a spacious room for that purpose, it is to be hoped that a large increase will also take place in this important department of our Institution, and that the present valuable collection which is now available for the use of our members, (under certain necessary restrictions,) may become a respectable nucleus of a good scientific Library of reference. The establishment of such a Library has long been urgently required by the Members of our Society. We therefore earnestly trust that our friends will remember that donations of books of this class, will be usefully bestowed, and gratefully acknowledged.

From the Meteorological Register kept at the Hall the following abstract is derived, to show the monthly averages for the past year:—

1860.	Mean Temperature.	Mean Height of Barometer.	Total Amount of Rain in Inches.
January	39.0	29.394	2.985
February	36.8	29.810	0.500
March	41.0	29.570	1.385
April	43.7	29.826	0.750
May	53 2	29.411	2 815
June	54.0	29.541	4.425
July	58.9	29.838	2.590
August	55.9	29.475	3.950
September	52.9	29.748	2 275
October	49.6	29.777	1.480
November	41.1	29.761	3.245
December	35.7	29.543	1.915

The greatest degree of Heat, as indicated by the Thermometer, in the sun was 108°, on the 8th of July; greatest in the shade 78°, on the 9th of July.

The greatest Barometric pressure was on the 13th of February, 30.600 inches, the temperature of the Mercury being 48°. The least pressure was on the 24th of January, 28.430, the temperature of the Mercury, 52°.

The greatest fall of Rain was on the 27th of May, being .660.

LEEDS PHILOSOPHICAL AND LITERARY SOCIETY,

FROM MAY 13, 1860, TO MAY 1, 1861.

RECEIPTS.

		£.	s.	d.
By Balance in Treasurer's hands		326	3	4
Ditto Sub-Curator's hands		7	11	3
Subscription of 32 Old Ordinary Members at 42s each		67	4	0
,, 78 New Ordinary Members at 21s. each		81	18	0
,, 29 New Proprietary Members at 21s. each		30	9	0
,, 65 Annual Subscribers at 21s each		68	5	0
,, 14 New Annual Subscribers at 21s. each		14	14	0
,, 30 Annual Subscribers at 5s. each		7	10	0
,, 5 New Annual Subscribers at 5s. each		1	5	0
Arrears of Subscriptions		32	16	0
Rent of Geological Society		20	0	0
Rent of Cellars under the Hall		20	0	0
Rent of Lecture Room		13	13	0
Subscriptions of 3 New Ordinary Members at 42s. each		6	6	0
Admissions to the Museum	68 15 0			
Less Commission	5 10 0			
		63	5	0
Fines from Council Meetings		1	6	6
Sale of Sir J. W. Herschell's Lecture		0	5	2
Interest from Banker		5	4	0
		£767	15	3

DISBURSEMENTS.

				£.	s.	d.
To Insurance				8	12	6
Gas and Coke				7	0	
Coals				6	9	
Tradesmen's Bills :—Messrs. Hopes, Painters	2	12	4			
Benton, Joiner	12	2	10			
Hall, Plumber	11	11	11			
Nelson and Son	0	13	0			
Burrows, for Brushes	1	2	0			
Harvey and Reynolds	2	15	7			
Longley and Son, Bricklayers	7	14	0			
Hay, Chemist	0	17	9½			
Wilkinson	0	4	6			
				39	14	9½
Printing and Advertising :—Messrs. E. Baines and Son	22	7	0			
C Kemplay	6	5	6			
Heaton and Sons	5	13	3			
Hobson	1	11	0			
Butterworth and Hopes	0	9	0			
				36	5	9
Books and Stationery :—Heaton and Son	14	3	3			
J. Cross	1	16	5			
Tanfield	2	10	0			
Sundries	3	0	0			
				21	9	8
Travelling Expenses of Readers of Papers				19	10	0
Sub-Curator's Salary				120	0	0
Porter's Salary				31	4	0
Rates and Taxes :—Water Rate, Main Sewer Rate, Assessed Taxes, and Property Tax				3	7	5
Expenses of Conversazione	12	8	8			
Less Receipts	2	15	0			
				9	13	8
Expenses of Annual Meeting Conversazione				3	1	11
Subscription to the Society of Arts				2	2	0
Tea and Coffee for General Meetings				5	5	8½
,, Council Meetings				2	19	0
Postages and Postage Stamps				10	7	3
Purchase of Specimens for the Museum				44	15	9
,, from Dr Hook's Fund				26	0	0
Carriage and Packing of Parcels and Specimens				7	16	3
Preparation and Setting-up of Specimens				23	8	5
Sundry Expenses, Cleaning, Assistance, &c.				23	14	
Expenses to the Isle of Man				2	14	3
Subscription to the Union of Yorkshire Philosophical Societies				0	10	6
Gratuity to Mrs. Holmes				3	0	0
Banker's Commission				0	16	0
Balance in Banker's hands				302	19	7
,, Sub-Curator's hands				4	16	0
				£767	15	3

SUBSCRIPTIONS

PROMISED FOR THE

ENLARGEMENT OF THE HALL AND MUSEUM

OF THE

LEEDS PHILOSOPHICAL & LITERARY SOCIETY.

	£.	s.	Additional and New Subs. £.	Additional and New Subs. s.
William Aldam.....	25	0		
W. J. Armitage.....			10	0
J. Atkinson and Son	5	0		
Rev. Dr. Atlay			10	10
Edwd. Baines, M.P.	50	0		
Frederick Baines ...	20	0		
E. W. Balme, Cote Wall, Mirfield ...	50	0		
Robert Barr	20	0		
Rev. A. Barry	25	0	5	0
Joseph Bateson.....	20	0		
J. M. Barwick	20	0		
John Batley	20	0	5	0
William Beckett ...	200	0	100	0
Sir Thomas Beckett, Bart.	50	0		
George S. Beecroft, M.P.	50	0		
John Benson.....	20	0	5	0
William Best.....	20	0	5	0
M. B. Beverley.....			10	10
Benjamin Binks ...	5	5		
Samuel Birchall ...	25	0	25	0
J. D. Birchall	50	0		
Messrs. Bishop and Hewitt			5	0
W. T. Bolland	20	0		
W. T. Bolland, Jun.	20	0		
William Booth	2	2		
W. D. Boothman ...	20	0		
John Botterill	20	0		
Charles Bousfield ...	20	0		
James Bray	20	0		
John Bray, Newlay Hall	50	0		
W. C. Buck			5	0
J. O. Butler	50	0		
Henry Broadhead...			10	0
James Brown, M.P.	200	0		
Samuel Jas. Brown	100	0	50	0
Wm. Brown, Headingley	50	0		
Messrs. Briggs & Co., Water Lane	20	0		
Joshua Buckton.....	50	0		
George Buckton ...	50	0		
James Burniston ...	25	0		
William Cadman ...	10	0		
Dr. Chadwick	50	0		
William Chadwick, Arksey	50	0		
S. Clapham, Burley,	20	0		
George Clay	20	0		
Joseph Cliff	25	0		
W. H. Conyers			50	0
John Cooper	50	0		
Samuel Cooper.....	50	0		
John Crofts	50	0		
Barker Crowther ...	10	0		
J. W. Cudworth ...			10	10
Edward Davis			2	2
Benj. Dawson & Co.	20	0		
T. T. Dibb.....	20	0		
G. E. Donisthorpe...	50	0		

	£.	s.	Additional and New Subs. £.	s.
Rev. B. Eamonson, Collingham	5	0		
Frederick Eddison..	20	0		
Hannah M. Eddison	20	0		
R. J. Ellershaw.....	20	0		
Christopher Empson	10	0	5	0
T. Emsley, Burley	5	0		
Thomas England ...			20	0
Sir Peter Fairbairn	100	0		
Andrew Fairbairn...			50	0
T. Farmer, Arthington Hall.....	20	0		
William Firth	20	0		
Earl Fitzwilliam ...	50	0		
J. B. Fleischmann...			5	0
R. L. Ford.....	20	0		
W. E. Forster, M P., Burley, near Otley	20	0		
Dr. Edwin Foster...	5	0		
Frederick Fryer ...			2	2
John Fowler	3	3		
The Earl de Grey and Ripon	25	0		
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A Series of Fossils, from the Tertiary Coal Field of South Borneo	The late Mr. James Motley, of Bangermissing, Borneo.
Basaltic Column, from the Giants' Causeway.	Mr. J. R. W. Atkinson, London.
Fine Specimens of Asbestus, from Natal Colony; Winstone, from the Klip River, South Africa	*Mr. W. Boyne, F.S.A., London.
Specimen of Pentacrinus Briareus, from Lyme Regis	Purchased by the Society.
Skull and Horns, of an Adult Roebuck, and other Mammalian Remains, from the Dowkerbottom Cave, in Craven	James Farrar, Esq., M.P. Ingleborough House.
Rock Salt, from Sodom; Silex, from Mount Carmel; Jasper, from the Mount of Olives.	Mr. Edw. Atkinson, Jerusalem.

ZOOLOGY.

Fine Specimens of the Chilian Flamingo, (Phænicopterus ignipalliatus); Immature Emu, (Dromaius Novæ Hollandiæ;) Rifle Bird, (Ptiloris Paradiseus); Obarrah, or Frilled Bustard; Adjutant, (Leptoptilus Argali); fine Vulture, (Gyps tenuirostris); Wood Ibis, (Tantalus loculator); Immature Specimen of the Rhea, (Rhea Americana); Red-billed Jay, (Pica erythrorynchus); very fine Skull of the Gavial, (Gavialia gangetica); magnificent Skulls of the Narrow-nosed and common Crocodiles of Borneo; fine Specimen of that rare Monkey the Semnopithecus rubicundus, from Borneo; Specimen of the Wolf; very fine Skull of the Abyssinian Wart Hog, (Phacochœrus Æliani; Active Gibbon (Hylobates agilis), from Borneo; splendid Adult Specimen of the Spiny Echidna, (Echidna Spinosa,) from Van Dieman's Land	*The Rev. Dr. Hook, Dean of Chichester.

Very fine Preserved Head, and Foot, and Skull of the Two horned Rhinoceros, of South Africa; Skull of the African Elephant; Jaw of the Asiatic Elephant; Skulls of the Spotted Hyæna and Reit Bok, of South Africa	*Mr. W. Boyne, F.S.A., London.
A Valuable Collection of Specimens from Borneo, consisting of 184 Skins of Birds; Skin and Skull of the Bornean Bear; Skull of the Orang Outan; fine Skull of the Wild Boar; Specimen of the Kalong (Pteropus Javanus), and three other Species of Bats; Pair of Squirrels; Pair of the Negro Monkey; and three other Species of Monkeys; Immature Specimen of the Manis; two Specimens of Cats, and other Animals at present undetermined	The late Mr. James Motley, of Banjermissing, Borneo.
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Skull of the Bottle-nosed Dolphin; Jaws, Dorsal Fin, and Vertebræ, of the Shark; Two Skulls of the Albatros; Horn of the Gemsbok	Mrs. S. Radcliffe, per Mr. Joseph Teale.

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Meteorological Papers, published by authority of the Board of Trade: part 4th, 4to, 1860	The Board of Trade, by Rear Admiral Fitzroy, F.R.S.
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Magnetic and Meteorological Observations at St. Helena, 1844-49: 4to.	The British Government.
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Memoirs of the Literary and Philosophical Society of Manchester: vol. XV., part 2, 8vo. Proceedings of the Literary and Philosophical Society of Manchester, 1859-60...	The Manchester Literary and Philosophical Society.
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FORTY-SECOND REPORT

OF

THE COUNCIL

OF THE

LEEDS

PHILOSOPHICAL AND LITERARY

SOCIETY;

AT THE CLOSE OF THE SESSION,

1861-62.

READ AT THE ANNUAL MEETING, MAY 6TH, 1862.

LEEDS:

PRINTED BY J. HAMER, SUCCESSOR TO J. HEATON & SON, 7, BRIGGATE.

MDCCCLXII.

IMPORTANT RULE

RESPECTING THE PROPERTY OF THE SOCIETY;

PASSED OCTOBER 8TH, 1860.

That in the event of the dissolution of this Society, its Property and Effects, whether real or personal, shall not be disposed of for the personal benefit of the Members; but shall be appropriated in such manner for the advancement of Science, Literature, or Art, in the town of Leeds, as shall be determined by a majority of the Members, at an extraordinary Meeting to be convened for that purpose. But that no dissolution of the Society shall take place without the consent, in writing, of a majority holding not less than two-thirds of the Proprietary Shares.

FORM OF A BEQUEST TO THE SOCIETY.

Every person desirous of bequeathing to the Society any Sum of Money, Specimens, Books, Instruments, or other Property, is requested to make use of the following Form :—

I give and bequeath to the Trustees for the time being of the Society established at Leeds, called "THE LEEDS PHILOSOPHICAL AND LITERARY SOCIETY," *for the use of the said Society, the sum of , to be paid out of such part of my personal Estate as I may legally charge therewith.* [Or here enumerate the Effects or Property intended to be bequeathed.] *And I direct that the Receipt of the Treasurer of the said Society for the time being, shall be an effectual discharge to my Executors for the said Legacy.*

REPORT OF THE COUNCIL

AT THE CLOSE OF THE

FORTY-SECOND SESSION,

MAY 1ST, 1862.

It is the pleasing duty of the Council to commence their Forty-second Annual Report by congratulating the Members on the steadily increasing prosperity of the Society.

The result of the appeal which it was found necessary to make during the recess, having been most liberally responded to, and the sum of £8,747 having been subscribed, the Building Committee were thus enabled to adopt the Plan of Messrs. Dobson and Chorley, and to advertise for contracts for the building. As the lowest tenders were sent in by tradesmen of acknowledged respectability and skill, they were, of course, accepted. Accordingly, the erection of the new Museum, Lecture Theatre, and Library, and the reconstruction of the old building, were commenced with all despatch; and although there is still a considerable amount of work to be done before the com-

pletion of the whole structure, they hope that the advance already made will be deemed satisfactory.

During the progress of the building, a few alterations and improvements, both as to external effect and internal arrangements, suggested themselves, and, after careful consideration, the Building Committee approved of their adoption, although they were thus necessarily obliged to incur a small additional outlay.

The most important of these was the erection of a handsome and commodious Porch to cover the great door in Park Row, to extend over the paved footway, and thus allow the entrance and exit of company from carriages, without inconvenience, in all weather, besides adding dignity and importance to the architectural elevation of the principal front of the edifice.

To make this improvement, however, it was necessary to obtain the permission of the Town Council; and we have much pleasure in availing ourselves of this public opportunity of acknowledging the friendly feeling in which the official application of the Building Committee for this favour was received by that body, and most kindly and considerately complied with.

The introduction of vases to complete the vertical line of the pilasters, and break the monotonous level of the parapet, was suggested by high authority to the Building Committee, and unhesitatingly approved of by the architect. In this instance, the Building Committee were relieved from the responsibility of trespassing on the limited funds at their disposal, by the generosity of

one of their own Members, and they request that the Council will avail themselves of this occasion to make a public and grateful acknowledgment to Mr. John Rhodes for his munificence in defraying the expense of this interesting addition to the external decoration of the building.

Questions of considerable importance connected with the lighting, warming, and ventilating the entire building, have engaged the attention of the Committee, who found it necessary to request their architect to inspect some of the large public institutions of the country. From his report and plans they trust that the improved arrangements to be carried out in these departments will be found to give general satisfaction.

In consequence of the very defective state of the roof of the old Geological Room, it has been found absolutely necessary to replace it by a new one of improved construction, also admitting more light. This unavoidable expense is in some degree compensated for by the increased height of the wall, which will thus admit of the erection of a gallery at some future time, if required.

The whole sum subscribed up to this day, is £8,747 18*s*. The expenditure, in the purchase of the adjoining warehouse, the cost of building and alterations, architects' commission, salary of clerk of works, legal expenses, furnishing Lecture Theatre, Museum, Library, &c., will probably fall very little short of £10,000. To make up the deficiency, we confidently

trust that those patriotic citizens who have not as yet assisted us, and many of the neighbouring gentry who have not been personally applied to, will now come forward to help us in the completion of such a noble effort to provide suitable accommodation for this valuable Institution, which has, year by year, materially contributed to raise the character of the West Riding of Yorkshire and its great capital.

Your Council have much satisfaction in reporting the prosperous state of the finances of the Society. During the past year, forty-five new Annual Subscribers of different classes, and two Members of the old Ordinary class, have been elected. By the extension of the cellarage also under the enlarged building, the annual rent of these premises will be more than doubled.

Some unusual items have been unavoidably added to our expenditure during the late exceptional Session. Your Council have been obliged to engage a temporary Lecture Theatre for the General Meetings of the Society; and they are indebted to the Committee of the Stock Exchange for a considerable reduction from their usual rent for their large room hired for this purpose. They have been also compelled to hire a small neighbouring house in Wine Street for their temporary accommodation during the progress of the new building, at a rent of twenty pounds a year. The Council and the Building Committee have been most comfortably accommodated during their Meetings in

this convenient house, which is at the same time occupied by the servants of the Institution, who are thus enabled to take charge of the Library, and numerous articles which are required to be kept dry and secure.

Notwithstanding the heavy demands upon our ordinary funds in these various items of unusual expenditure, and the serious loss of income from the closure of the Museum, the Meeting will be glad to hear that the Society have up to this day a balance of £267 18*s.* in the hands of their Treasurer.

While referring to the property of the Society and its altered circumstances, it will be proper to state here that your Council were legally instructed that a re-appointment of Trustees of the Institution was urgently required, in consequence of the original number having been reduced to one, from death or other causes. This subject was submitted to a Special General Meeting of the Proprietary Members, when it was resolved to appoint to this office some of the younger members of those influential families by whom the Society has been generously supported. In accordance with this view, the following gentlemen were elected as new Trustees to act with Mr. Gott:—Mr. Reginald Dykes Marshall, Mr. William Ewart Gott, Mr. Samuel James Brown, Mr. William Beckett Denison, Mr. Francis Lupton, and Mr. Samuel Birchall.

In consequence of the important changes which have taken place in the constitution of the Society

during the past year, the Council are engaged in the careful consideration and revision of its Rules and Regulations, so as to adapt them to the altered circumstances of the Institution. When the new Rules and Regulations shall have been approved by our successors, they will, of course, be submitted to the consideration of a General Meeting, to be specially convened for that purpose, and of which due notice will be given.

The irreparable loss sustained by the nation from the unexpected and premature death of the late lamented Prince Consort, have evoked the heartfelt sympathy of all classes with their beloved Queen in her sad bereavement. Foremost amongst those bodies who ventured to approach Her Majesty with Addresses of Condolence in this hour of trial, were the various learned and scientific Institutions of the country. With this object, also, a Special General Meeting of this Society was held on the 18th of January last, and an Address of Condolence, prepared by the Council, was read by one of your Honorary Secretaries. The adoption of this Address was moved by His Worship the Mayor of Leeds, and seconded by Mr. Gott, and carried unanimously. It was resolved at the same time, that the Address should be entrusted to our Honorary Member, Earl de Grey and Ripon, for presentation to Her Majesty. The Council beg leave to state that this Address was kindly presented by his Lordship, and received most graciously by the Queen.

PAPERS AND LECTURES.

The Sessional Card has been exceedingly interesting and attractive.

1. The Opening Lecture was delivered by Dr. Mouat, Her Majesty's Inspector-General of Prisons in the Bengal Presidency of India. The subject was "A Narrative of a Government Expedition to Explore the Andaman Islands, with an Account of the Country and its extraordinary Inhabitants." Professor Owen had read, a few weeks before, a Paper "On the Physical Peculiarities of the Andamans," at the Meeting of the British Association at Manchester, and as he stated that his facts were obtained from Dr. Mouat, this Lecture was looked for with much curiosity by a crowded Meeting of the Society. The audience appeared to be highly gratified by Dr. Mouat's instructive and singular narrative, eloquently related in the most pleasing and popular manner.

2. At the second General Meeting of the 5th November, the celebrated Monsieur P. B. Du Chaillu gave the Society an account of his "Travels in equatorial Africa, and the Gorilla country." This Lecture was illustrated with splendid specimens of the Male and Female Gorilla, and two other species of African Apes, from his own collection. Much curious desire to see this extraordinary traveller was evinced by the Members of this Society, and the Lecture Theatre was crowded to excess.

3. On the 19th November, a Paper was to have been read by Captain Cameron, Her Majesty's Consul in the Caucasus, on "The Geography, Ethnology, and Commerce of that interesting country." Captain Cameron having been unexpectedly ordered to proceed to his Consulate at a few hours' notice, was compelled to send his Paper to be read by Mr. O'Callaghan. This valuable Paper, though exceedingly interesting and instructive from the matter, necessarily lost much of its attractiveness from the absence of the writer.

4. At the fourth General Meeting on the 3rd of December, a Paper was read by the Rev. John Kenrick, of York, "On the Historical Traditions of Pontefract Castle, with an inquiry into the evidence of the Death of Richard II. within its walls." From the high literary reputation of the distinguished Vice-President of the Yorkshire Philosophical Society, and the local associations of the subject, this Paper was looked for with general interest. Unfortunately Leeds was visited with a dense fog on that evening, which prevented a large portion of the Members from hearing one of the best written Papers of the Session, displaying in a remarkable manner the learned industry and research of the author.

5. On the 20th December, a most interesting Lecture was delivered by Professor Allen Dalzell, of Edinbro', "On the recent Spectrum Discoveries of Kirchoff and Bunsen, and their application." This instructive Lecture was admirably illustrated by successful experiments, which were beautifully manipulated and clearly explained to a crowded and gratified audience.

6. On the 7th of January, Professor Henry Hennessy, F.R.S., of Dublin, read a most interesting Essay "On the Relations of Science to Modern Civilization." This learned Paper appeared to be so highly appreciated and so valuable, that a request was made by the Council to the distinguished author to allow the Society to publish it. We have the pleasure to state that this request has been obligingly complied with, and that the Paper is now in the hands of our printer, and will be distributed to the Members in due course with this Report.

7. On the 7th of January, Professor John Connington, of Oxford, was to have read a Paper "On the Play of Hamlet." Unluckily this Paper was mislaid by the learned Professor, and a reading of his own translation of the Fourth Book of the Æneid of Virgil was substituted for it. The translation appeared to be very beautiful and faithful, and the reading was listened to with much attention and pleasure by those Members to whom the subject was familiar.

8. At the eighth General Meeting on the 4th of February, a Paper was read by our Vice-President, the Rev. Alfred Barry, "On the Historical and Philosophical value of the Study of Language." It is unnecessary to observe that this Paper, on a subject peculiarly associated with the pursuits of the accomplished author, was heard with much interest by a numerous audience.

9. On the 18th of February, a Lecture was delivered by Mr. John Lubbock, F.R.S., "On the recent Geologico-Archælogical Discoveries in Denmark, Switzerland, and France." As this important subject is at present engaging the attention of the scientific world, a numerous audience assembled to hear Mr. Lubbock's account of his personal explorations and investigations of these extraordinary vestiges of a primeval race of man. This attractive Lecture was admirably illustrated with Maps and Drawings; and from the graphic and lucid manner in which Mr. Lubbock arranged his materials and explained his views, the Meeting was evidently much gratified.

10. The Rev. J. B. Reade, F.R.S., delivered a Lecture "On Polarized Light," at the tenth General Meeting, on the 4th of March. This interesting subject was ably treated by our distinguished fellow-townsman, who was most efficiently assisted in his beautiful illustrative experiments by Dr. Miller, of London, and Mr. W. R. Milner, of Wakefield. The Council have much pleasure in recording in this Report their grateful acknowledgment of the obligation conferred on the Society by these gentlemen, whose valuable services contributed so much to the usefulness and attractiveness of Mr. Reade's Lecture.

11. Major-General Chesney, R.A., F.R.S., &c., was to have read a Paper "On the Primeval Cities of the World," at the twelfth General Meeting, on the 7th of April. Unluckily (as in the case of Captain Cameron) the General was unexpectedly compelled to embark at a few hours' notice for Constantinople, on the very day when he was expected at Leeds. However, as his Map and Drawings are deposited in the hands of one of your

Honorary Secretaries, we look forward with pleasure to the fulfilment of his engagement, which was thus accidentally interfered with.

12. The thirteenth General Meeting concluded the Session, with a most valuable and instructive Paper from Professor Hopkins, of Cambridge, "On the Motion of Glaciers." This distinguished Philosopher had intended to read an original communication "On the Temperature of the Earth's Crust." Unfortunately he has not recovered sufficiently from his severe accident of last year to undertake the necessary investigations and personal explorations of deep mines, so as to enable him to collect all the facts he requires. However, he has kindly volunteered to fulfil his promise next Session; and we are confident that the Society will be at all times ready to receive him with a grateful welcome, whenever he may be enabled to favour them with a Lecture or Paper on any subject he may select for their instruction.

JUVENILE LECTURES.

During the month of January, Dr. Clifford Allbutt, one of our new Members, kindly delivered a valuable Course of Juvenile Lectures "On the Forms of Plants and Animals." These highly instructive Lectures appeared to be appreciated not only by the young people, but by their parents and friends, who attended in considerable numbers each day.

MUSEUM.

The greatest part of the contents of the Society's Museum still remain closely packed in the old rooms which are not to be much disturbed in the reconstruction of the building; but much difficulty was felt in providing accommodation for the large and cumbrous articles which it was necessary to remove. From this embarassment your Council were relieved by the considerate liberality of one of the most munificent and constant friends of the Institution, Mr. James Brown, M.P., of Rossington, who kindly gave them the use of a large warehouse in Woodhouse Lane, rent free. Your Council feel that they would be wanting in the performance of their duty if they neglected to bring this generous act under the notice of the Society, and to record on this public occasion their grateful sense of the obligation under which they are placed to this respected friend of the Institution.

It is evident that this popular source of useful instruction continues to increase in attractiveness, from the fact that upwards of 3,000 visitors were admitted in the months of May and June, the short period of last year during which it could be kept open to the public.

In anticipation of its entire reconstruction and rearrangement, the Curators have availed themselves of every opportunity for procuring specimens illustrative of peculiar Geological formations, or typical of Generic

forms, upon the possession of which so much of the educational value of the Museum depends. In furtherance of their exertions in this direction, they have to acknowledge the kind assistance of several friends, from whom valuable contributions have been received.

The Society is indebted to Mr. Pickering, of Tufnel Park Road, London, for seventy-one examples of Land and Fresh-water Shells, from the upper tertiary deposits of Copford and Grays, in Essex, and the Kennet valley peat beds, near Newbury. A series of the Brachiopodus Mollusca from the Carboniferous Limestone, and specimens of Rocks from the neighbourhood of Richmond, in Yorkshire, have been presented by Mr. Edward Wood, F.G.S. The examples from the Carboniferous Limestone series of Yorkshire, have been further enriched by the liberality of Mr. J. H. Burrow, of Settle.

The Mineralogical collection has been enriched by the kind contribution of several Cornish specimens, presented by Mr. Charles Bousfield, of Leeds; and a valuable series of specimens of Aluminium, presented by Messrs. Bell Brothers, of Newcastle-on-Tyne. This department, however, although extensive for a provincial Museum, is yet in want of several important Earths and Metals.

In the department of Zoology, several valuable acquisitions have been made. A magnificent adult specimen of the Scarlet Flamingo, an Australian Pelican, and a very fine example of that singular and

rare reptile, the Molochus Horridus, were presented to us by Mr. James Farrar, M.P., of Ingleborough House, in this county.

His Worship the Mayor of Leeds, Mr. James Kitson, has kindly presented us with fine examples of the Roseate-Spoonbill and Arabian Vulture.

A fine specimen of the Stanley Crane, a White Falcon from Australia, and a pair of Caledonian Night-Herons, have been presented by Mrs. Thomas Tennant; and a Male and Female Lyre Bird, by Mr. George Morley, of this town.

Our old and generous contributor, Mr. Edward Atkinson, has presented us with a fine Male specimen of the Beden, or Syrian Ibex, and the Chetah or Hunting Leopard from Mount Carmel. Mr. Andrew Fairbairn has presented us with a specimen of the Male Honduras Turkey. Messrs. Hyam, of Leeds, have given us a fine White-headed Eagle.

To the munificent liberality of Mr. Thomas Walker, of Stainley Hall, near Ripon, the Society is indebted for a most interesting and valuable collection of Quadrupeds, Birds, and Reptiles, from South Africa: amongst these will be found the Galago Moholi, Egyptian and Red Ichneumons, Crocodile, Monitor Lizard, the Goliath and Black-headed Herons, Purple Water-Hens, Hornbills, Fish-Eagle, Trogon, Cuckoos, Sand-Pipers, &c. From our fellow-townsmen, Messrs. Russum Brothers, another valuable collection of forty South African Birds has been presented. In this group

are included several interesting species of Ducks and Geese, Pigeons, Partridges, Fruit Eaters, Rollers, Eagles, Peregrine Falcon, Heron, &c. Mr. Oswald Brigg, of Graham's Town, has also sent us several interesting specimens of Reptiles and Insects. From South Africa we have likewise received, as a donation from Mr. Henry Gilbert Jackson, a fine specimen of that splendid Antelope, the Koodoo.

Mr. T. J. Pearson has presented us with twelve Australian Birds; a gift which comes most opportunely, as the Museum is much in want of specimens of Birds from that colony.

Mr. Townend Glover, of New York, has most liberally presented us with thirteen American Birds, including the Bird of Washington. A specimen of that beautiful little American Rodent, called Hoods Marmot, has been presented by Mr. O'Callaghan. A good specimen of the Three-toed Sloth of Rio Janeiro, has been presented by Mr. William Petty.

The British series of Birds have been enriched by the addition of three fine Ptarmigans in their summer plumage, presented by the Marquis of Breadalbane; also by a very fine pair of the Ringed Pheasant, presented by Mr. Henry Hood, of Scruton Hall; and by a specimen of the Sandwich Tern, by Mr. William E. Swaine.

In addition to the foregoing valuable donations, several important acquisitions have been obtained by purchase from the ordinary funds of the Society.

These include a remarkably fine species of Sloth, from Demerara; the Small and Hairy Armadillo; fine pairs of the Horned Tragopan, and Peacock Pheasant; a young specimen of that extraordinary reptile, the Lepidosiren; fine pair of the Rock Snake; a superb specimen of the Eagle Owl; also specimens of the Scops Owl, Red-necked and Eared Grebes; and fine casts of the Skulls of the Gorilla, both adult and young. Fine examples of the three species of Woodocrinus (a genus of Crinoids, peculiarly interesting from its isolated locality in the West Riding of Yorkshire); also, several fine specimens of Fossil Fish, from the marlstone of Durham. While to the Oolitic series have been added several of the interesting Fishes and Crustacea, from the limestone beds of Solenhofen and the foliated brown coal of the Rhine.

The principal additions to the department of Archæology, consist of a beautiful antique Gold Watch, presented by Miss Oates, of this town. Six Sepulchral Vases, from the graves at Cuzco, the ancient capital of Peru, presented to us by our munificent patron, Mr. William Gott. Five Stone Implements, from sepulchral mounds in Denmark, presented to us by Professor Stephens, of Copenhagen. An ancient Porcelain Seal of Thotmoses III., King of Egypt, presented by Mr. Edward Atkinson. An ancient Wooden Comb, from the bog of Allen, in Ireland, and two large and rare specimens of old Irish Silver Ring-Money, presented by your Honorary Secretary, Mr. O'Callaghan.

LIBRARY.

The Library has received several important additions during the past year. Foremost amongst these is the splendid donation from the Lords Commissioners of the Admiralty, consisting of the whole series of works of the Royal Astronomical Society, upwards of forty volumes, 4to. The Society are much indebted to Professor Airey, the Astronomer Royal, for this valuable addition to its Library.

The Society has also been presented with a complete series of Astronomical and Meteorological Observations made at the Radcliffe Observatory of Oxford. For this gift we are indebted to the Trustees of the Radcliffe Observatory.

The Council beg leave to direct attention to another splendid donation, presented by the Trustees of the British Museum, consisting of 131 volumes, comprising the entire series of the Illustrated Catalogue of the Zoological department of this great national collection. For this most valuable and useful gift, the Institution is mainly beholden to one of the kindest and most influential of their Honorary Members, the Right Honourable Earl de Grey and Ripon.

The Astronomical Society of London have kindly presented us with their "Memoirs."

The Archæological Society of Sussex have presented us with four volumes of their Transactions.

The Imperial Royal Geographical Society of Vienna have honoured us with a present of four 4to. volumes of their Transactions.

The Royal Academy of Sciences of Palermo have likewise presented us with a series of their Transactions; and at the same time conferred the diploma of Honorary Membership of their Society upon Mr. O'Callaghan, one of your Honorary Secretaries.

We have also to acknowledge a gift of the Transactions of the Royal Society of Edinburgh; the Proceedings of the Academy of Sciences of Philadelphia; the American Philosophical Society; the Smithsonian Institution, Washington; and those of various other British and Foreign Societies, as will be seen in the detailed list of our Annual Contributions.

The Council, in thus acknowledging and gratefully recording these numerous and valuable contributions to the Museum and Library, cannot conclude their Report without expressing a hope that, when the splendid apartments for their reception shall have been completed, the friends of the Society will see that patriotic bequests and donations to such a noble Institution cannot be more usefully bestowed.

From the Meteorological Register kept at the Hall the following abstract is derived, to show the monthly averages for the past year :—

1861.	Mean Temperature.	Mean Height of Barometer.	Total Amount of Rain in Inches.
January	36.0	29.995	0.020
February	41.0	29.656	1.565
March	43.0	29.511	3.420
April	45.0	30.028	1.475
May	50.0	29.912	0.765
June	58.0	29.794	1.785
July	59.0	29.528	3.940
August	61.0	29.639	0.780
September	51.0	29.469	3.265
October	50.0	29.651	0.925
November	39.0	29.289	2.690
December	39.0	29.743	1.220

The greatest degree of Heat, as indicated by the Thermometer, in the sun, was 102°, on the 1st of September; greatest in the shade 83°, on the 14th of June.

The greatest Barometric pressure was on the 4th of February, 30,600 inches, the temperature of the Mercury being 57°. The least pressure was on the 19th of March, 28,750, the temperature of the Mercury 55°.

The greatest fall of Rain was on the 5th of September, being 0.870.

LEEDS PHILOSOPHICAL AND LITERARY SOCIETY,

From MAY 7th, 1861, to MAY 6th, 1862.

RECEIPTS.

	£.	s.	d.
To Balance in Treasurer's hands	302	19	7
Ditto Sub-Curator's hands	5	6	2
Subscription of 30 Old Ordinary Members at 42*s.* each	63	0	0
,, 85 New Ordinary Members at 21*s.* each	89	5	0
,, 39 New Proprietary Members at 21*s.* each	40	19	0
,, 70 Annual Subscribers at 21*s.* each	73	10	0
,, 20 New Annual Subscribers at 21*s.* each	21	0	0
,, 32 Subscribers at 5*s.* each	8	0	0
,, 21 New Annual Subscribers at 5*s.* each	5	5	0
Rent of Geological Society	20	0	0
,, Cellars under the Hall	20	0	0
,, Lecture Room	3	0	0
Admissions to the Museum 12 10 0			
Less Commission 1 0 0			
	11	10	0
Fines for Council Meetings	0	14	6
Sale of Old Paper	0	16	6
Interest from Bankers	6	0	0
Arrears of Subscriptions	36	19	0
	£708	4	9

DISBURSEMENTS.

				£.	s.	d.
By Insurance				8	12	6
Gas and Coke				5	7	4
Coal				6	10	6
Tradesmen's Bills:—Messrs. Hopes, Painters	2	6	6			
Benton, Joiner	16	12	6			
Hall, Plumber	1	16	0			
Nelson and Son	2	16	0			
Harvey and Reynolds	3	4	9			
Holland	1	19	0			
Hassé	1	12	6			
				30	7	3
Printing and Advertising:—Messrs. Baines and Son	6	2	6			
C. Kemplay	18	15	6			
				24	18	0
Books and Stationery:—J. Cross	4	10	0			
W. Tanfield	0	15	0			
				5	5	0
Travelling Expenses of Readers of Papers				49	13	0
Sub-Curator's Salary				120	0	0
Porter's Salary				31	4	0
Rates and Taxes				5	14	4
Rent of Stock Exchange for General Meetings				26	0	0
,, House in Wine Street				15	0	0
,, Civil Court				0	12	6
Subscription to the Society of Arts				2	2	0
Postages and Postage Stamps				7	18	2
Purchase of Specimens for Museum				36	5	1
Carriage and Packing of Specimens				5	15	4
Preparation and Setting-up of Specimens				21	10	1
Sundry Expenses, Cleaning, and Assistance				22	11	7
Tea and Coffee for Council Meetings				4	9	0
Gratuity to William Holmes, the Porter				5	0	0
Bankers' Commission				0	14	0
Balance in Bankers' hands				267	18	10
,, Sub-Curator's hands				6	16	3
				£708	4	9

SUBSCRIPTIONS

PROMISED FOR THE

ENLARGEMENT OF THE HALL AND MUSEUM

OF THE

LEEDS PHILOSOPHICAL AND LITERARY SOCIETY.

	£.	s.	Additional and New Subs. £.	Additional and New Subs. s.
William Aldam	25	0		
W. J. Armitage			10	0
J. Atkinson and Son	5	0		
Rev. Dr. Atlay			10	10
Edward Baines, M.P.	50	0		
Frederick Baines ...	20	0		
E. W. Balme, *Cote Wall, Mirfield*	50	0		
Robert Barr	20	0		
Rev. A. Barry	25	0	5	0
Joseph Bateson	20	0		
J. M. Barwick	20	0		
John Batley	20	0	5	0
William Beckett ...	200	0	100	0
Sir Thomas Beckett, Bart.	50	0		
George S. Beecroft, M.P.	50	0		
John Benson	20	0	5	0
William Best	20	0	5	0
M. B. Beverley			10	10
Benjamin Binks	5	5		
Samuel Birchall	25	0	25	0
J. D. Birchall	50	0		
Messrs. Bishop and Hewitt			5	0
W. T. Bolland	20	0		
W. T. Bolland, Jun.	20	0		

	£.	s.	Additional and New Subs. £.	Additional and New Subs. s.
William Booth	2	2		
W. D. Boothman ...	20	0		
John Botterill	20	0		
Charles Bousfield ...	20	0		
James Bray	20	0		
John Bray, *Newlay Hall*	50	0		
W. C. Buck			5	0
J. O. Butler	50	0		
Henry Broadhead ...			10	0
James Brown, M.P.	200	0		
Samuel Jas. Brown	100	0	50	0
Wm. Brown, *Headingley*	50	0		
Messrs. Briggs & Co., *Water Lane*	20	0		
Joshua Buckton	50	0		
George Buckton	50	0		
James Burniston ...	25	0		
William Cadman ...	10	0		
Dr. Chadwick	50	0		
William Chadwick, *Arksey*	50	0		
Thomas Charlesworth			10	0
S. Clapham, *Burley* ...	20	0		
George Clay	20	0		
Joseph Cliff	25	0		
W. H. Conyers			50	0

	£.	s.	Additional and New Subs. £.	s.
John Cooper	50	0		
Samuel T. Cooper ...	50	0		
John Crofts	50	0		
Barker Crowther ...	10	0		
J. W. Cudworth ...			10	10
Edward Davis			2	2
Benj. Dawson & Co.	20	0		
The Duke of Devonshire			25	0
T. T. Dibb	20	0		
G. E. Donisthorpe...	50	0		
Rev. B. Eamonson, *Collingham*	5	0		
Frederick Eddison...	20	0		
Hannah M. Eddison	20	0		
R. J. Ellershaw	20	0		
Christopher Empson	10	0	5	0
T. Emsley, *Burley* ...	5	0		
Thomas England ...			20	0
Sir Peter Fairbairn	100	0		
Andrew Fairbairn...			50	0
T. Farmer, *Arthington Hall*	20	0		
William Firth	20	0		
Earl Fitzwilliam ...	50	0		
R. L. Ford	20	0		
W. E. Forster, M.P., *Burley, near Otley*	20	0		
Dr. Edwin Foster ...	5	0		
Frederick Fryer			2	2
John Fowler	3	3		
The Earl de Grey and Ripon	25	0		
John Gott	300	0	100	0
William Gott	300	0	100	0
Edward Greaves.....			20	0
Dr. Greenhow			5	0
Thomas Greenwood..	20	0	5	0

	£.	s.	Additional and New Subs. £.	s.
Thomas Hall	50	0	5	0
John Hargrave	20	0		
James Hargrave ...	50	0		
S. B. Hargreaves ...	50	0		
J. Hartley, *Otley* ...	5	0		
Messrs. Harvey and Reynolds	5	0		
Dr. Heaton	25	0	15	0
J. W. Hebblethwaite	10	0		
W. W. Hewitson ...	50	0		
William Hey	100	0		
Samuel Hey	50	0		
Rev. Thomas Hincks	5	0	5	0
Peter Hobson..	5	5		
J. D. Holdforth	50	0		
W. B. Holdsworth...	50	0		
Samuel Holmes			20	0
Abraham Horsfall ...	5	0		
Joseph Holt	20	0		
Henry Holt			20	0
Messrs. Hotham and Whiting			5	0
Robert Hudson	50	0		
R. J. Hudson.....	20	0	5	0
J. I. Ikin			5	0
William Illingworth	20	0		
William Ingham ...	20	0	5	0
Edward Irwin	20	0		
Julius Israel	20	0		
Samuel Jackson.....			20	0
John Jowitt	50	0		
William Glover Joy	50	0		
Walker Joy	25	0		
William Kempe.....			5	0
Christopher Kemplay	20	0		
Thos. John Kinnear	50	0	25	0
Thomas Kirkby.....	10	0		
Frederick Kirkby ...	10	0		

	£.	s.	Additional and New Subs. £.	s.
James Kitson	50	0		
J. Y. Knight			5	0
Joseph Lambert	20	0		
Philemon Land			5	0
Samuel Lawson and Sons	60	0		
J. W. Leather			20	0
J. T. Leather, *Leaventhorpe Hall*	50	0		
Samuel Leathley	20	0		
William Ledgard	20	0		
Eyre Ledgard			20	0
Dennis Lee	10	0		
William Lister	5	0		
The Rt. Hon. Lord Londesborough	10	0		
J. D. Luccock	25	0	25	0
Henry Ludolf	50	0	10	0
Arthur Lupton	100	0	50	0
Joseph Lupton	50	0		
Darnton Lupton	25	0	10	0
Francis Lupton	25	0	25	0
John Lupton	25	0		
Jos. Lupton, *Armley*	20	0		
C. E. MacCarthy	5	5		
C. G. Maclea	20	0		
John Manning	15	0		
J. O. March	50	0		
George March	20	0		
J. L. Margerison	50	0		
Jas. Garth Marshall	200	0		
H. Cowper Marshall	200	0		
Arthur Marshall	200	0		
Reginald Dykes Marshall			50	0
J. Marshall, *Horsforth Hall*	20	0	10	0
S. D. Martin	10	0		
Edmund Maude	20	0		
J. W. Middleton	10	0	10	0

	£.	s.	Additional and New Subs. £.	s.
John Mirfin			20	0
George Morley	20	0	10	0
John Morfitt	5	0		
William Morphet			20	0
W. H. N. Myers	20	0	5	0
W. C. Myers	20	0		
N. P. & H. Nathan			20	0
Charles Naylor			5	0
D. W. Nell	20	0		
George Nelson	20	0	5	0
Henry Nelson			20	0
W. N. Nicholson, *Roundhay*	50	0		
Richard Nickolls	25	0		
Thomas Nunneley	20	0	5	0
Thomas Nussey	20	0		
Obadiah Nussey	20	0		
The Misses Oates	10	0		
P. O'Callaghan	20	0	5	0
Henry Oxley	50	0		
The Rt. Honourable Viscount Palmerston, M.P.	25	0		
R. E. Payne	25	0		
William Petty	20	0		
Thos. Edwd. Plint	20	0		
J. W. Ramsden			20	0
Josiah Ramskill	3	3		
Dr. Ramsbotham			20	0
Miss Read	20	0		
W. T. Raynar			10	0
Isadore Ree			3	3
George Reinhardt			5	0
Rev. J. A. Rhodes	100	0		
John Rhodes	100	0	50	0
Rev. W. Richmond, *Moortown*			5	0
J. H. Richardson	10	0		

	£.	s.	Additional and New Subs. £.	s.
Thomas Riley.....	20	0		
Henry Riley	3	3		
Richard Ripley	20	0		
The Bishop of Ripon	20	0		
Richard Robinson ...	20	0		
John Robinson	20	0		
Charles Ryder	10	10		
William Scholefield..			5	0
Edward Schunck ...	50	0		
B. F. Scott.....	5	0		
Nathaniel Sharpe ...			25	0
John Hope Shaw ...	20	0	10	0
Alderman Sidney, M.P., *London* ...	21	0		
R. W. Simpson	20	0		
Edw. Simpson, *Moortown*			15	0
John Smith	50	0	50	0
John Metcalfe Smith	25	0		
John Edward Smith			20	0
J. Wales Smith	5	0		
Wm. Farrar Smith...	20	0		
Smith, Beacock, and Tannett	50	0		
Henry Smith.....	5	0		
Edward James Smith	5	0		
James Stables.....	20	0	5	0
T. W. Stansfeld.....	50	0		
Walter Stead	20	0		
George Talbott	20	0	5	0
Mary Ann Tatham...	20	0		
George Taylor	20	0		
Messrs. Taylor and Wordsworth	40	0		
Joseph Teale	20	0		
T. P. Teale.....	50	0	30	0
Thomas Tennant ...	50	0		
Mrs. Tennant.....	50	0		

	£.	s.	Additional and New Subs. £.	s.
J. M. Tennant	25	0	10	0
Robert Tennant.....	50	0		
F. W. Tetley	25	0		
Anthony Titley	20	0		
Thomas A. Titley ...	20	0		
J. W. Tottie, *London*	20	0	10	0
Richard Townsley ...	20	0		
H. C. Turkington ...	10	0		
R. B. Turner			25	0
J. G. Uppleby	50	0		
B. R. Vickers.....	5	0		
John Wade.....	25	0		
Edward Walker.....			20	0
Thomas Walker.....	20	0		
W. S. Ward	25	0	25	0
Major Waud	20	0		
John Whitaker, 32, *Abchurch Lane, London*	100	0		
Messrs. J. and W. Whiteley			10	0
Thomas Whiteley ...	20	0		
Wilkinson and Co....	50	0		
John Wilkinson, *Austhorpe Hall*.....	25	0		
John Wilson, *Seacroft*	50	0		
John Wilson, *Roundhay*	20	0		
Wm. Wilson, *Armley*			5	0
Philip Wolff	25	0		
R. H. Wood	20	0		
Harry Wood, *Farfield House, Armley* ...			50	0
Edward Wurtzburgh	20	0		
George Young			20	0

DONATIONS AND ADDITIONS

TO THE

SOCIETY'S MUSEUM.

Those marked thus (*) are Honorary Members; thus (†) Members of the Society.

GEOLOGY AND MINERALOGY.

A Collection of Fossils, from the Cleveland Hills	Mr. Richard Thorp, Cleveland.
Fine Specimens of Shale, containing Goniatites Listeri and Pecten Papyraceus, from Rawden	Mr. John Dixon.
Specimens of Chert, from Simon's Seat ...	†Mr. William Chadwick.
A Collection of Cornish Minerals.....	†Mr. C. Bousfield.
A valuable Collection of Fossils, from the Mountain Limestone of Yorkshire	Mr. J. H. Barrow, Settle.
A valuable Series of seventy-one Fossil Land and Fresh Water Shells, from the Upper Tertiary Deposits of Copford and Grays, Essex, and the Kennet Valley Peat Beds, near Newbury, Berks	Mr. J. Pickering, F.G.S., London.
Fine Specimens of Woodocrinus, Expansus, Didactylus, and Macrodactylus, and Fish, from the Magnesian Marlstone of Durham	Purchased by the Society.
Specimens of Limestone and other Rocks, from the neighbourhood of Richmond, Yorkshire; and a valuable Series of Brachiopodus Mollusca, from the Mountain Limestone of Yorkshire.....	Mr. Edward Wood, F.G.S., Richmond
Specimens of Coal Plants from Birkenshaw	Mr. G. Ellison, Birkenshaw.

Specimens of Crustacea and Fish, from Solenhofen; and Fish, from the Foliated Brown Coal of the Rhine	Purchased by the Society.
Specimen of Equisetum Columnare, from the Cleveland Hills	Mr. Cail, Stokesley.
An interesting Series of Specimens of Aluminium.....	Messrs. Bell Brothers, Newcastle-upon-Tyne.

ZOOLOGY.

Three Specimens of the Ptarmigan, in their Summer Plumage	*The Marquis of Breadalbane, Taymouth Castle.
Magnificent Specimen of the Scarlet Flamingo, Australian Pelican, and Molochus Horridus from Australia.....	Mr. James Farrar, M.P., Ingleborough House.
Fine Specimen of the Sandwich Tern	Mr. William Swaine.
Very fine Specimens of the Roseate Spoonbill and Arabian Vulture	†Mr. James Kitson, Mayor of Leeds.
Pair of the Caledonian Night-Heron, Stanley Crane, Australian White Falcon, and Golden Pheasant.....	Mrs. Thomas Tennant.
Very fine Pair of the Lyre Bird	†Mr. George Morley.
Fine Specimen of the Honduras Turkey ...	†Mr. Andrew Fairbairn.
Specimen of the Three-toed Sloth.....	†Mr. W. H. Petty.
Thirteen Birds from North America, including the Bird of Washington, Golden-Winged and Red-Headed Woodpeckers, Towye Bunting, Carolina Parroquet, Orchard Oriole, Blue Jay, Virginian Nightingale, Nuthatch, &c.	Mr. Townend Glover, New York
Specimens of the Small and Hairy Armadillo.....	Purchased by the Society.
Specimen of the Male Beden, or Jaela, from Syria; fine Horns of ditto; Specimen of the Chetah, from Mount Carmel	†Mr. Edward Atkinson.
Singularly fine Specimen of the Two-toed Sloth, from Berbice	Purchased by the Society.

Specimen of the Orange-Crested Cockatoo and Carpet Snake	Mr. James Edmonds, Royal Menagerie.
Several Reptiles and Insects, from Graham's Town, South Africa	Mr. Oswald Brigg, Graham's Town.
Very fine Specimen of the White-Headed Eagle, from America	Messrs. S. Hyam and Co., Leeds.
Specimen of the Gulf Weed	Mr. Jeremiah Cullingworth, D'Urban, Port Natal.
Two Specimens of the Rock Snake, from Port Natal; and Specimen of the Secretary Bird	Purchased by the Society.
Specimen of Agama Cornuta, from Texas...	Mr. Walker Barrowclough, Leeds.
Five Casts of Skulls of the Male and Female Gorilla, of different ages	Purchased by the Society.
A large Species of Spider, found in Logwood	Mr. James Grange, Wortley.
Twelve beautiful Parrots, and other Birds, from Australia	Mr. T. J. Pearson.
A most valuable Collection of twenty Specimens from South Africa, including the Galago, Moholi, Common and Red Ichneumons, Monitor Lizard, Crocodile, Goliath Heron, Black-throated Heron, Purple Water-Hens, Hornbills, Fish Eagle, Trogon, &c.	Mr. Thomas Walker, Stanley Hall, near Ripon.
Specimen of Hoods Marmot, from North America	†Mr. O'Callaghan.
Fine Pair of the Ringed Pheasant	Mr. Henry Hood, Scruton Hall, near Bedale.
Pair of the Horned Indian Pheasant	Purchased by the Society.
Forty valuable Birds from South Africa, including the Spurwinged Goose, Egyptian Goose, several Ducks, Francolins, Partridges, Pigeons, Fruit Eaters, Eagle, Falcon, Painted Snipe, Spurwinged Plover, Grebe, Orioles, &c.	Messrs. Russum Brothers, Leeds.
Fine Male Specimen of the Koodoo, from South Africa	Mr. Henry Gilbert Jackson, Leeds.
Beautifully prepared Jaws of the Skate ...	Dr. Hobson.

Several interesting Orthopterus Insects, from Jamaica	*The Honourable Richard Hill, Spanish Town, Jamaica.
Specimen of the Gulf Weed.....	Mr. W. P. Lapage.
Specimens of the Magpie, Jay, and Sparrow Hawk	†Mr. Aldam, Frickley Hall, Doncaster.
Specimens of the Eared Grebe and Red-necked Grebe, Black and Arctic Terns, Harlequin Duck, Quail, Eagle Owl, and Scops Owl	Purchased by the Society.

MISCELLANEOUS.

Silver Groat of Elizabeth, found at Bramley Hill Top.....	†Mr. R. Nicholls.
Porcelain Seal of Thotmoses III., King of Egypt; and Roman Coins, found in Jerusalem	†Mr. Edward Atkinson.
An Ancient Wooden Comb, found in the Bog of Allan, Ireland; Specimens of Ancient Silver Ring-Money, found in Ireland	†Mr. O'Callaghan.
Violin made by Chinese Emigrants at Berbice; Bow and Poisoned Arrows from Berbice; Chop Sticks from China	Rev. N. Greenwell.
Very handsome Antique Chased Gold Watch..... ...	†Miss Oates, Leeds.
Six very interesting Sepulchral Vases, from the Graves at Cuzco, the ancient capital of Peru	†Mr. William Gott.
Five Stone Adzes, from Sepulchral Mounds in Zealand, Denmark.....	Professor George Stephens, Copenhagen.
Fine Tile from a Roman Hypocaust, near Stokesley.....	†Mr. Eyre Ledgard, Stokesley.
Cast of a Brass Medal of Henry VIII., found on Roseberry Topping.....	Mr. R. Cail, Stokesley.
Very remarkable Hatchet, of Basalt, found in the Victoria Cave, Craven, identical with some from the Island of Tahiti.....	Mr. Jackson, Settle, per Mr. O'Callaghan.

LIBRARY.

An Illustrated and Descriptive Catalogue of the Collection of Antique Silver Plate formed by the late Lord Londesborough, by F. W. Fairholt, F.S.A.	The Lord Londesborough.
The Book of the Signers, containing Fac-simile Letters of the Signers of the Declaration of Independence, by William Brotherhead: 4to.	The Author, Philadelphia.
Proceedings of the Boston Natural History Society: Vol. VII., Parts 16 to 28. Ditto: Vol. VIII., Parts 1 to 4	The Boston Natural History Society, United States.
Proceedings of the Academy of Natural Sciences of Philadelphia, 1861	The Academy of Natural Sciences, Philadelphia.
Atti Dell 'Accademia di Scienze e Lettere di Palermo: Nova Seriæ, Vol. II. and III., 4to	The Academy of Science, Palermo.
Statistica della Istruzione Publica in Palermo, dell anno, 1859, per Frederico Lancia di Brolo	The Author.
Proceedings of the Literary and Philosophical Society of Liverpool: No. XV.	The Liverpool Literary and Philosophical Society.
Maskelyne's Observations, from 1765 to 1798: 3 vols., folio Miss Herschell's Catalogue of Stars, folio Pond's Observations, from 1825 to 1838, folio Airey's Astronomical Observations, 1836 to 1847: 12 vols., 4to. —— Magnetical and Meteorological Observations, 1840 to 1847: 8 vols., 4to. —— Astronomical, Magnetical, and Meteorological Observations (including all Appendices, Reports, &c.) 1848 to 1858: 11 vols., 4to. Reduction of Observations of Planets, 1750 to 1830: 2 vols., 4to. Reduction of Observations of the Moon, 1750 to 1830: 2 vols., 4to. Reduction of Observations of the Moon, 1831 to 1851: 4to. Monthly Notices of the Astronomical Society Eiffe and Molyneux on Chronometers	The Lords Commissioners of the Admiralty.

On the Occurrence of Flint Implements, associated with the Remains of Animals of Extinct Species, in Beds of a late Geological Period, by Joseph Prestwich, F.R.S., F.G.S.: 4to.	The Author.
Proceedings of the Zoological Society of London for 1860: Part III. Ditto, for 1861: Parts I. and II.	The Zoological Society of London.
Second Report of a Geological Reconnaissance of Arkansas, 1859, by David Dale Owen: 8vo.	The Representatives of the Author.
The Transactions of the Academy of Science of St. Louis: No. 4	The Academy of Science, St. Louis.
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FORTY-THIRD REPORT

OF

THE COUNCIL

OF THE

LEEDS PHILOSOPHICAL & LITERARY SOCIETY,

AT THE CLOSE OF THE SESSION

1862-63.

READ AT THE ANNUAL MEETING, MAY 6TH, 1863.

LEEDS:
PRINTED BY EDWARD BAINES AND SONS.
MDCCCLXIII.

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PASSED OCTOBER 8TH, 1860.

That in the event of the dissolution of this Society, its Property and Effects, whether real or personal, shall not be disposed of for the personal benefit of the Members, but shall be appropriated in such manner for the advancement of Science, Literature, or Art, in the town of Leeds, as shall be determined by a majority of the Members, at an extraordinary Meeting to be convened for that purpose. But that no dissolution of the Society shall take place without the consent, in writing, of a majority holding not less than two-thirds of the Proprietary Shares.

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REPORT OF THE COUNCIL

AT THE CLOSE OF THE

FORTY-THIRD SESSION,

MAY 1ST, 1863.

No Annual Meeting of the Members of this Society has been assembled under circumstances of greater interest than on the present occasion, since its first formation forty-three years ago. It is highly probable that the Session which is about to close this evening, will be looked back upon, after the lapse of many future years, as the most memorable in its annals.

It was stated in the last Annual Report that the various important changes which have been recently made in the constitution of the Society had rendered a revision of its laws and regulations imperatively necessary. Accordingly, several general meetings of the Members were specially convened during the recess, for the consideration and revision of the laws which were to regulate the future government of our Institution. It was ultimately agreed to refer the laws thus revised, to the consideration of two members of the legal profession, old friends of the Society, Messrs. J. H. Shaw and T. T. Dibb,

for the purpose of making such verbal or technical alterations as they might think desirable. In this amended form, the new laws and regulations were finally adopted on the 8th of last December. They have been since printed, and are now ready for distribution to the Members, on application to the Assistant Secretary.

Our President commenced his opening address, by bidding you a hearty welcome to this noble Hall; and Professor Owen, in his inaugural address, was pleased to express his unqualified praise, not only of the construction of the entire edifice, but also of the suitable disposition of the various apartments, and the arrangements of the Museum, then only in process of being carried out in detail. Our Hall has been since visited by Dr. Gray, of the British Museum; Professor Huxley, of the Government School of Mines; and Professor Morris, of the University College, London; and this meeting will be glad to hear that these learned gentlemen, so highly distinguished in their respective departments of Natural History and Geology, were equally gratified with what they saw here. Your Council, therefore, feel that it is due to their architects, Messrs. Dobson and Chorley, to state on this occasion that they have succeeded, under great disadvantages, in reconstructing this Building, with all its various requirements, to their entire satisfaction.

It may be well to mention here, that the difficulties incidental to the first trials of a new and complicated system of heating, ventilating, and lighting the different rooms of this large building, have been nearly overcome, and your Council do not anticipate any further inconvenience to the Members, from future accidental failures in these essential requisites.

Although the Building Committee have been anxiously careful of the expenditure of the funds at their disposal, during the time of their supervision, they found certain outlays beyond the original estimates unavoidable. For instance, the roof of the old Zoological Museum was ascertained to be so defective, that it became absolutely necessary to replace it with a new one, and to improve the vertical lights. This, with several minor alterations, obliged them to come reluctantly before their friends and the public with another appeal to their liberality. Your Council have great pleasure in acknowledging the generous response already given to this appeal, and they confidently hope to see their successors enabled to conduct the affairs of the Society, during the ensuing Session, unembarrassed with any serious pecuniary difficulties. Your Council cannot allow this opportunity to pass without calling upon this annual meeting, for a general expression of their grateful sense of the important services rendered to this Institution, by the assiduous labours of the Building and Canvassing Committees. To the untiring exertions of these gentlemen, the Society is mainly indebted for the splendid building in which we are now assembled—a building of which not only Leeds, but this great West Riding of York, may justly feel proud, and the advantages of which will be appreciated from year to year more and more. Although it is difficult to bring under exclusive notice on this occasion individual Members of these Committees, when all have done so much, still your Council would wish to make a special acknowledgment to the Chairman and Treasurer of both these Committees, those generous friends of the Society, Mr. William Gott and Mr. John Rhodes.

In looking through the last five or six annual reports it will be seen that a steadily progressive improvement has been taking place, not only in our ordinary financial affairs, but likewise in the increasing interest and enlarged attendance of the Members at the evening meetings. The past year, however, has exceeded our most hopeful calculations in this respect, and we now find that this spacious and commodious Lecture Theatre is barely sufficient for the accommodation of the audience, even on ordinary occasions. During the past Session 196 new Members and Subscribers have been elected; this actually nearly trebles our former constituency, not including old Proprietary Members. In 1857-8 our Society consisted of 189 Members and Subscribers, while this year its numbers have increased to 560.

Your Council must not overlook this occasion for adverting to the lamented death of the late William Beckett, Esq., one of the most influential Members of the Society. Mr. Beckett has been at all times a liberal supporter of this Institution, and a short time before his death contributed a large sum towards the rebuilding of this Hall.

PAPERS AND LECTURES.

The Sessional Programme of Lectures and Papers has never been excelled in any previous year, either in importance or interest.

1. Mr. James Glaisher, F.R.S., of the Royal Observatory of Greenwich, was so kind as to give us a graphic account of his recent Balloon Excursions for the purpose of Meteorological Observations. On this occasion, and during a most instructive course of four Lectures, delivered by Professor Owen, "On

Subjects of Natural History and Paleontology," it was deemed advisable to admit non-Members, on a small pecuniary charge, to the privilege of hearing and seeing these distinguished men. For this purpose, the Council were obliged to engage the Music Hall, and to incur considerable expense in printing and advertising. They have, however, the pleasure to report that this speculative outlay was fully made up by these exceptional payments, and repaid more than tenfold, by the extraordinary increase in the number of our Members and Subscribers.

2. The new Hall was appropriately opened on the 16th December, with an Inaugural Address from one of the greatest living Naturalists, Professor Owen, and the meeting will be glad to hear that this admirable discourse has been printed for the Society, and can be now obtained by the Members, on personal application to the Assistant Secretary. In the evening of the same day, the Members re-assembled, when an Address was delivered by our President, Mr. T. P. Teale, F.R.S., "On some objects of interest peculiar to our Museum." At the conclusion of this address the rooms were thrown open for a Conversazione and Exhibition, which will be noticed subsequently.

3. At the second General Meeting in our new Hall, Sir Rutherford Alcock, Her Majesty's Minister at Japan, delivered an interesting Lecture "On Japan." This Lecture was illustrated with maps and drawings, and numerous specimens of Japanese Art.

4. At the third General Meeting, John Scott Russell, Esq., F.R.S., the famous Naval Architect, delivered a Lecture "On the Iron Navy of England."

5. At the fourth General Meeting, Sir Charles Nicholson, Bart., D.C.L., LL.D., late Speaker of the House of Assembly and Chancellor of the University of Sydney, read a Paper "On Australia, its present state and prospects."

6. At the fifth General Meeting, the Rev. Thomas Hincks, B.A., one of our Vice-Presidents, read a Paper "On the Plan of Life," taking a department of Natural History, in which he has acquired special distinction.

7. At the sixth General Meeting, Sir Harry Parkes, K.C.B., Her Majesty's Consul in China, delivered a Lecture "On China, its present state and relations with Europe."

8. At the seventh General Meeting, Professor Pepper, the well-known Lecturer at the Royal Polytechnic Institution of London, gave us a Lecture "On the Progress of Modern Science, as illustrated by the late International Exhibition." This Lecture was in part experimental.

9. At the eighth General Meeting, that distinguished Architect, George Gilbert Scott, Esq., F.S.A., R.A., read a Paper "On Gothic Revival, the true ground work of a distinct Architectural Style."

10. At the ninth General Meeting, Cyril Graham, Esq., B.A., gave us a Lecture "On the Ancient Cities of Og, in the land of Bashan." Illustrated with maps and drawings.

11. At the tenth General Meeting, Clifford Allbutt, Esq., M.B., a Member of the Council of this Society, read a Paper "On Physiognomy."

12. At the eleventh and last General Meeting, we were favoured with a Paper by Major General Chesney, F.R.S., M.R.I.A., &c., "On the Primeval Cities of the World." Illustrated with maps and numerous drawings.

Reverting to the Conversazione and Exhibition, your Council feel that it is necessary to explain the circumstances under which the latter was undertaken. One of the officers of the Society, during a visit to the International Exhibition last year, had been promised by the authorities of South Kensington a special loan of an enlarged travelling collection, to be selected from Her Majesty's private collection and the National Museum in their charge.

This offer, though late in the season, was gratefully accepted, and steps were immediately taken to arrange for the reception of the expected treasures, and for their safe custody. It was at the same time intimated from Head Quarters, that this loan collection ought to be supplemented by local contributions of Pictures, Works

of Art, and Virtu; your Council felt the paramount importance of this suggestion, and a sub-Committee was accordingly formed to carry this object into effect. The result of their exertions was eminently successful, and the Exhibition in the new Philosophical Hall, at Leeds, although nearly improvised, will be long remembered as one of the most valuable and popular sources of instruction and amusement which was ever before presented to our large community. Your Council should not omit to avail themselves of this public occasion to make a grateful acknowledgment to the Town Council, and especially to the Watch Committee, for their considerate assistance in affording them the necessary police guard for the secure protection of the valuable property so kindly entrusted to the Society for this Exhibition.

MUSEUM.

As might have been anticipated from the increased space afforded by the enlargement of our building, and the greater facilities given by this means for the useful display of the specimens, the Museum has never in any previous year been so enriched with rare and valuable contributions. Foremost amongst the important donations must be placed the great Bengal Tiger. This superb animal was shown by Colonel Charles Reid, C.B., in the Indian Court of the International Exhibition last year, and has been pronounced by Professor Owen to be unequalled in Europe, either for its extraordinary size or its artistic and life-like setting up. The entire cost of this splendid specimen, including its purchase

and various incidental expenses, has been defrayed by the munificent liberality of Mr. William Gott. It has been fitly placed in the centre of the large Zoological Room, and is always the most attractive object in that collection.

Another generous friend, Mr. George Noble, was so kind as to place the sum of £60 in the hands of our Assistant Curator (who was about to proceed to London), for the purpose of purchasing such specimens for our Museum as it was thought most desirable to obtain. By this opportune aid, Mr. Denny has been enabled to add to our collection a most valuable series of species, including the female and two cubs of that singular Carnivorous Marsupial, the Tasmanian Wolf: an animal now become nearly extinct. This picturesque group has been, like Mr. Gott's Tiger, also set up by Ward, of London.

Mr. Noble's gift has likewise enabled the Society to procure a fine specimen of the giant Kangaroo, Koala, Echidna, and two rare species of Colobus, besides other rare desiderata, which will be recorded more minutely in the list of donations to be annexed to this report.

The Quadrumana have received two other valuable accessions, one, that of a large and apparently unknown species of Semnopithecus, the other a good skeleton of a male Chimpanzee. The Society will be glad to hear, that a skeleton of an Anthropoid Ape in this compartment, purchased about seven years ago, and hitherto looked upon as a new species of Chimpanzee, has been recently examined with care by Professor Huxley, and Dr. Gray, and pronounced by both these eminent Naturalists, to be an undoubted skeleton of the Gorilla.

It is a curious coincidence, that it should be of the same age as the Chimpanzee just referred to. These are, therefore, very important specimens, as they illustrate in the most satisfactory manner the osteological and dental peculiarities of these two animals—the nearest yet found in affinity with human beings. It is gratifying to think that our Museum has been in possession of such a treasure as a complete skeleton of the Gorilla, long before the recent explorations in Western Africa had given that animal so much celebrity.

A valuable addition has been made to the class of Ruminants in our collection. One of the finest of these specimens is the male Bison, promised to the Society by the late Marquis of Breadalbane, and kindly presented in consequence by his successor.

Captain Edmond Smyth, of Her Majesty's Indian Army, has presented us, through his father's friendly intercession, with a splendid specimen of the great Indian Yak, and a male and female Argali. These are amongst the rarest and most important acquisitions that could be added to our collection. Colonel Sykes, M.P., with a patriotic recollection of his native county, has presented us with a large collection of Quadrupeds and Birds, formed during his long military service in India. Unfortunately many of these specimens were rendered totally useless, in consequence of having been left undisturbed in their packing cases for several years. However, numerous fine examples have been obtained from this collection, which the Society were not likely to acquire from any other source for years to come.

Dr. Heaton, your Librarian, has presented us with a fine head and horns of the Canadian Moose Deer.

The Earl of Tankerville has presented us with the skeleton of the Chillingham Ox, supposed by some to be the type of the aboriginal British species.

Mr. Edward Atkinson, whose numerous donations to your Museum during his long residence in Jerusalem, would of themselves constitute a respectable collection, has this year given us a perfect skeleton of the Camel, and Hyrax, and the preserved skins of several other quadrupeds, from Syria.

Lord Londesborough has sent us, within the last few days, a case containing numerous preserved skins of Egyptian Birds, and a fine example of the Monitor Lizard. These specimens were obtained by his Lordship during a recent sporting tour in that country, and specially preserved for our Museum. His Lordship has at the same time, considerately intimated his wish to defray the expense of the setting up of any, or all of these specimens.

Mr. George Morley, lately a Member of your Council, has presented us with a valuable series of Birds and Reptiles, also procured during a tour in Egypt last year.

Dr. Lindley has presented us with twenty-eight specimens of Birds, and a section of the Douglas Pine, from British Columbia.

Mr. James Holt, of Sydney, New South Wales, has presented, through his brother, Mr. Joseph Holt, of Leeds, a very valuable case of Australian Birds, in the finest plumage, most of them extremely scarce and beautiful. Besides this case of Birds, Mr. Holt has sent us a case of Australian Insects, and a specimen of a rare species of poisonous snake.

But one of the most interesting donations which the

Department of Natural History has received this Session is a complete series of British Butterflies, contributed by Mr. Walker Joy. This most beautiful and instructive collection, is the result of the unwearied industry, and scientific research of many long years, and it is impossible to over-estimate its importance to students in Entomology.

In the Department of Archæology, the Museum has obtained by purchase from the funds of the Society, a fine specimen of a Mosaic Pavement, supposed to have formed the floor of a bath in the ancient Roman town of Isurium, near Boroughbridge, in this county. It is a very perfect example of the style of that art during the Roman occupation, and is especially interesting, not only from its local association, but from its figurative representation of the well known legend of Romulus and Remus, which has not been hitherto found in this country on any other Roman tesselated work. This Department has also received another remarkable addition, in the donation of an inscribed Mural Stone, presented by Dr. Hammond, who has made a transcript and English translation from it. He brought it from Nablus, the ancient Biblical City of Shechem, and it turns out to be a Samaritan version of the Decalogue, of extreme antiquity.

The Council must notice here also the valuable acquisition of a Peruvian Mummy. For this interesting specimen, the Society is indebted to Mr. John Holmes, one of our Subscribers, who liberally contributed a great part of the purchase money.

The Library has received so many contributions lately, that it begins to expand into respectable dimensions.

Already the extensive ranges of shelves in our large new room, look tolerably well filled, and it promises to become in a short time, a valuable depository of scientific works of reference.

It would be unreasonable to occupy the attention of this meeting, with a minute enumeration of all the donations to the Museum, and Library during the past year; your Council, therefore, beg leave to refer you to the appendix to the Report when printed, as it will furnish this information in detail. However, there are two very remarkable donations which cannot be passed over without special notice on this occasion. These are two valuable Paintings; the first, a well known picture of Dogs worrying a Cat, painted by Schwanfelder, and presented to the Society by Mr. John Goodman; the other, an equally well known picture of the old Moot Hall, in Briggate, painted by Joseph Rhodes, and presented by his namesake, Mr. John Rhodes. Both paintings are fine specimens of the works of distinguished Leeds Artists, and worthy of being made a fitting nucleus for a public local collection. It is to be hoped that the patriotic example thus set by these considerate and liberal friends of the Society, may be soon followed by others, who only require to have the way pointed out to them, by which such contributions might be usefully bestowed, and gratefully appreciated by their fellow townsmen in after years.

While on the subject of the Museum, your Council have been anxiously considering how they could meet the wishes of an important section of the Members of the Society, by the addition of an Industrial Department. For this purpose, a sub-Committee was appointed from

their body, to confer with the Chamber of Commerce, and those friends of our Institution, who were interested in this movement.

Several special Meetings and Conferences were held on this subject, and it was finally resolved to give up the present Archæological Room for the reception of an Industrial Collection, and to appropriate the Vestibule and ground floor Lobbies, to the Ethnological Collection, subject to the approval of its Curator. This arrangement, however, is understood to be contingent upon the Society's procuring sufficient funds for the purpose, after liquidating their present debt.

Your Council have not been inattentive to a Resolution passed at a General Meeting on the 11th of February last. In compliance with the general desire then expressed, an official application was made to the authorities at South Kensington, for assistance in the proposed formation of a Department of Industry, by the grant of donations of such duplicate specimens as could be conveniently spared from their extensive depôts, for so useful an object. This application was dated 14th February, and considerately entertained; for an official answer was received on the 28th of that month, stating that, in compliance with our request, certain specimens from the animal and food products and other departments of the South Kensington Collections, were being selected and arranged for us, and that we should have a further communication when they were ready for transmission.

Your Council have long felt the inconvenience and insecurity of the admission of visiters to the Museum by tickets. After carefully considering how this difficulty might be overcome in the most effectual way, they resolved

to have recourse to the simple expedient of payment at the door, and admission through a recording turn-style. They hope that the first expense incurred for the construction of this apparatus will ultimately prove to be an economical and satisfactory outlay.

Your Council regret that the Museum has remained so long closed to the public. The Members, however, will recollect that a considerable portion of the larger specimens were stored away in packing cases, and removed to a distance from the premises, during the progress of the new Building, while those objects that could not be safely removed, were closely packed into the old Zoological Room. When the new Hall was opened with an Exhibition, the most striking and attractive objects were hurriedly set up in the new Zoological Room, chiefly with a view to temporary display. Under these circumstances it will be evident, that the entire Museum required a complete re-arrangement, and scientific classification. This serious work has been undertaken by our Assistant Curator, Mr. Denny, and it has now advanced so far under his unremitting exertions, that your Council look forward to the re-opening of the Museum, in a few weeks. They confidently trust, that the Society and the public will be amply recompensed for this unavoidable delay, and that the Leeds Museum, will henceforward assume a foremost place amongst all similar Institutions in this country.

From the Meteorological Register kept at the Hall the following abstract is derived, to show the monthly averages for the past year:—

1862.	Mean Temperature.	Mean Height of Barometer.	Total Amount of Rain in Inches.
January	36	29.446	1.265
February	39	29.715	0.360
March	38	29.343	2.710
April	44	29.618	1.280
May	52	29.523	2.990
June	54	29.488	1.945
July	56	29.480	1.835
August	57	29.563	1.505
September	53	29.677	1.940
October	48	29.453	4.215
November	36	29.627	0.370
December	42	29.587	1.325

The greatest degree of Heat, as indicated by the Thermometer, in the sun, was 108°, on the 1st June; greatest in the shade 73°, on the 24th July, and minimum 21°, on the 19th July.

The greatest Barometric pressure was on 9th February, being 30,300, the temperature of the Mercury being 44°. The least pressure was on the 12th of June, being 28,800, temperature of Mercury 61°.

The greatest fall of Rain was on the 30th of May, being 1.240.

LEEDS PHILOSOPHICAL AND LITERARY SOCIETY,

From MAY 7th, 1862, to MAY 6th, 1863.

RECEIPTS.

	£.	s.	d.
To Cash in Treasurer's hands	267	18	10
Do. General Curator's hands	6	16	3
Subscription of 62 New Proprietary Members at 21s.	65	2	0
,, 33 Old Ordinary Members at 42s.	69	6	0
,, and Deposit of 1 Fresh Old Ordinary Member at 105s.	5	5	0
,, 91 New Ordinary Members at 21s.	95	11	0
,, 88 Old Annual Subscribers at 21s.	92	8	0
,, 71 New Annual Subscribers at 21s.	74	11	0
,, 56 Old Annual Subscribers at 5s.	14	0	0
,, 107 New Annual Subscribers at 5s.	26	15	0
Arrears of Subscriptions	55	1	0
Fines for Tea and Coffee	3	2	0
Receipts at Professor Owen's 4 Lectures	13	17	6
,, Mr. Glaisher's Lecture	6	10	0
,, the Conversazione	18	2	6
Rent of the Cellars under the Hall	20	0	0
,, Geological and Polytechnic Society	20	0	0
Discount from Gas Company	2	8	2
Interest from Bankers	3	13	0
Receipts for Sale of Tickets at Art Exhibition	511	10	7
	£1,371	17	10

DISBURSEMENTS.

				£.	s.	d.
By Insurance—Old Insurance, £8 12s. 6d.; New, £6 3s.				14	15	6
Gas and Coke—Gas, £26 8s. 10d.; Coke, £2 8s.				28	16	10
Coals				7	11	8
Tradesmen's Bills:—Hopes, Painters	27	13	6			
Benton, Joiner	33	7	6			
Nelson, Ironmonger	5	2	0			
Harvey and Reynolds	1	18	0			
Brag, Brass Pins	5	0	0			
Hay, Chemist	1	9	7½			
Burrow, Brushes	3	10	10			
Davis, Thermometers	1	5	0			
				79	6	5½
Printing and Advertising:—Messrs. Baines and Sons	6	8	6			
Kemplay	3	18	0			
Hamer	50	18	6			
Hobson	0	15	0			
Butterworth	0	4	6			
				62	4	6
Books and Stationery:—Cross	3	18	6			
Hamer	5	2	0			
				9	0	6
Travelling Expenses, &c., of Lecturers				52	9	6
Leeds Corporation, for paving Russell Street				11	17	8
General Curator's Salary				140	0	0
Gratuity to do.				40	0	0
Porter's Salary				31	4	0
Rates and Taxes				5	3	5½
Rent of Music Hall for Lectures 6 nights				16	9	0
,, House in Wine Street				12	15	4
,, Civil Court				0	5	0
Expenses of Conversazione—Refreshments, £9 10s. 3d.; Musicians, £3 5s.				12	15	3
Professor Owen for four Lectures				80	0	0
Expenses to London on two occasions to confer with Exhibition Commissioners				16	0	0
Subscription to Society of Arts				2	2	0
Postages and Postage Stamps				8	8	9½
Purchase of Specimens for Museum				64	1	1
Purchase of Mosiac Pavement				22	17	0
Carriage and Packing of Specimens				25	18	11
Preparation and Setting up of Specimens for Museum				21	3	6
Cleaning Specimens, articulating and repairing Skeletons				43	18	3
Cleaning Hall £7; attending Fires, &c. £4 19s. 6d.; Cleaning Glass £3 7s.				15	6	6
Sundry Expenses				14	9	11½
Tea and Coffee for Council Meetings				4	7	10½
Commission for Collecting Subscriptions				7	2	0
Bankers' Commission				2	11	0
Expenses attending the Art Exhibition				210	12	7
Balance in Bankers' hands				296	19	1
,, Curator's hands				11	4	7½
				£1,371	17	10

ADDITIONAL SUBSCRIPTIONS

TOWARDS

THE BUILDING FUND.

		£.
John Gott	3rd Sub.	100
William Gott	do.	100
S. J. Brown	do.	100
J. G. Marshall	2nd Sub.	50
H. C. Marshall	do.	50
Arthur Marshall	do.	50
James Brown, M.P.	do.	50
Rev. J. A. Rhodes	do.	50
Arthur Lupton	3rd Sub.	50
John Cooper	2nd Sub.	50
Andrew Fairbairn	do.	50
John Rhodes	3rd Sub.	50
James Kitson	2nd Sub.	50
T. W. Stansfeld	do.	50
William Brown	do.	50
S. T. Cooper	do.	50
F. W. Tetley	do.	50
W. N. Nicholson	do.	50
Titus Salt		50
William Beckett Denison		50
Do., by sale of Ticket		25.
T. Hawkshaw, C.E., *London*		50
John Calverley		20
Joseph Cliff	2nd Sub.	10
T. W. George		20
T. P. Teale	3rd Sub.	25
Henry Oxley	2nd Sub.	10
W. W. Hewitson	do.	25

		£.
Dr. Heaton	3rd Sub.	20
W. H. Conyers	2nd Sub.	10
G. S. Beecroft, M.P.	do.	20
Edward Baines, M.P.	do.	10
R. B. Turner	do.	25
Joseph Wilkinson		20
Reginald Dykes Marshall	2nd Sub.	10
Messrs. Shaw and Tennant	3rd Sub.	20
C. G. Maclea	2nd Sub.	20
Edward Schunck	do.	25
Christopher Kemplay	do.	20
Walker Joy	do.	25
Richard Nicholls	do.	21
George Taylor	do.	30
W. J. Armitage	do.	10
The Farnley Iron Company		20
R. L. Ford	2nd Sub.	10
P. O'Callaghan	3rd Sub.	5
Joseph Holt	2nd Sub.	5
J. M. Barwick	do.	5
Edward Irwin	do.	10
Thomas A. Titley	do.	5
Thomas Walker	do.	5
Cyril Graham		5
Sir R. Alcock, K.C.B.		5

DONATIONS AND ADDITIONS

TO THE

SOCIETY'S MUSEUM.

Those marked thus (*) are Honorary Members; thus (+) Members of this Society.

MINERALOGY AND GEOLOGY.

Mica Schist, from the Malvern Hills; Specimens of Shale, from Calverley, Moortown, and Rawden, containing Specimens of Pecten Papyraceus, and Goniatites Listeri; Basalt from Rowley Rag; Blue Lias, from Stratford-on-Avon; Amethystine Quartz; Calcareous Spar; and a Series of Geological Specimens from Kirkby Stephen, Westmoreland	Mr. John Dixon.
Two portions of the Cores of the Horns of Bos Urus, found in excavating for the sewerage, Hunslet	†Mr. E Filliter, Borough Surveyor.
Canine and Molar Teeth, and a portion of the Radius of a Bear; Jaws of the Badger; Jaws and Teeth of the Hare, from the Victoria Cave, near Settle	Mr. Jos. Jackson, Settle.
Eighty Specimens of rare and interesting Minerals, from Cornwall, mostly new to the Society's Collection	Mr. George Matthewman, Redruth.
An interesting Collection of Shells, from the Clyde Valley Deposit, near Glasgow	Mr. James Smith, F.G.S., Jorden Hill.
Three Fossil Fish, from the Limestone formation above Tripoli, on the Syrian Coast	Mr. W. P. Smith, C.E.
Magnificent Mass of Pentacrinus Briareus; fine Specimen of Halysites Catenularis; Head of Encrinitis Moniliformis; Ophioderma Egertoni; and several Fossil Fishes, from Solenhofen, Lyme Regis, and Darlington	†Mr. George Noble.
A valuable Collection of Spanish Minerals, from the International Exhibition	Presented by the Spanish Government.

Very fine Specimen of Sapphire	†Mr. P. O'Callaghan.
Specimens of Iron and Steel in various stages of Manufacture, from Sweden ..	The Swedish Commissioners.
Specimens of Blue and Green Carbonate of Copper, from South Australia	Mr. J. S. Dutton, Commissioner for South Australia.
Specimens of Cobaltiferous Pyrites; Asphaltum; Apatite; Mica; Plumbago; and Bituminous Shale, from Canada..	Mr. Brown Chamberlain, Commissioner for Canada.
An unusually large and perfect Specimen of Hæmatite, from Cumberland	†Mr. Wm. Gott.
Two Specimens of Silicified Wood and Fossil Shells, from the Mountain Limestone, Victoria	*Mr. James Holt, Sydney.
Very fine Mass of Quartz, from the Laxey Lead Mines, Isle of Man	†Mr. Alexander Falkner.

ZOOLOGY.

Very fine Specimen of Limulus.....	Capt. Anderson, Everton, Liverpool.
Patagonian Cavy; Viscacha; Black-tailed Kangaroo; Malabar Squirrel; Raffles's Squirrel; Flying Squirrel; Condur; Sacred Ibis; Jabiru; Pair of Viellot's Gallophasis; Three Species of Hornbill; Long-eared Podargus; Paradise Jacamar; Curassow	By Exchange with the Liverpool Free Museum.
Fine preserved Specimens of the Magpie and Jay.....	*Mr. George Lane Fox, Bramham Park.
Specimens of the Hudson's Bay Lemming; Myrmecobius Fasciatus; Phascogale Penicillatus; Marsh Harrier; Dartford Warbler; Eggs of the Cassowary and Emu; Skeleton of the Ground Hog (Aulacodes Swinderianus); Glutton; Young Specimen of the Beaver	Purchased by the Society.
Several Lepidopterous Insects, from India	Mr. W. S. Wade.
Male, Female, and Five Young Ones of the Red Grouse; and Female of the Sparrow Hawk	†Mr. P. O'Callaghan.
Specimens of the Par and Smolt	†Mr. T. P. Teale.
Very fine Skeleton of the Wombat; Casts of the Hand and Foot of the Gorilla, and of the Brain of the Elephant; and a rare species of Penguin	Purchased by the Society.

Two Heads and the Foot of a Mummy; Two Mummies of the Ibis; Fruit of the Date Palm; Nineteen Reptiles; Three Scorpions; and Twenty-four Skins of Birds, from Egypt	†Mr. George Morley.
Very fine Head and Horns of the Moose Deer or Elk, from Canada	Dr. Heaton.
Specimens of the Male Chimpanzee; Black Panther; Lemming; American Marmot, or Prairie Dog; Siberian Jerboa; Ring-tailed Lemur; Skull of the Wolf; and Australian Crane	Purchased by the Society.
Fourteen Birds from Australia	Dr. Milligan, Tasmania.
Fine Section of the Douglas Pine and Twenty-three Birds, from British Columbia	Dr. Lindley, London.
A magnificent Specimen of the Bengal Tiger, shot by Col. C. Reid, C.B., purchased at the International Exhibition	†Mr. William Gott.
A valuable Collection of Specimens, consisting of the Female Thylacinus, or Tasmanian Wolf, and two Cubs; Zebra; beautiful Specimens of the Guereza Monkey; Howling Monkey; Ursine Colobus; Tasmanian Echidna; Skunk; Dowroucouli; Cook's Heipoona; Large Kangaroo; Koala; Black Swan; Skeleton of the Canadian Porcupine; Skeleton of the Albatross; Bonypike; and Harvest Mouse	†Mr. George Noble.
Specimens of the Stump-tailed and Spiny Lizards, from South Australia	Mr. J. S. Dutton, Commissioner for South Australia.
Extraordinary large, and apparently undescribed, Species of Semnopithecus, from India	Mr. Patschowsky.
Skull of the Babyrussa	†Mr. J. P. Calvert.
Thirteen British Birds	Mr. H. E. Brameld.
Skeleton of the Cow of the original white or Chillingham Breed of Oxen	The Earl of Tankerville.
Very fine Specimen of the Male Bison, from Taymouth Castle	*The Most Noble the Marquis of Breadalbane.
Pair of the Californian Quail	†Col. Child.

A valuable collection of Specimens of Quadrupeds and Birds from India	*Col. Sykes, M.P.
Specimen of the Lump Fish	Mr. William Hill.
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Copy of the Leeds Mercury for Tuesday, March 28th, 1732	Mr. J. Herfield, Leeds.

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On the Evidence of the Antiquity of Man, afforded by the Physical Structure of the Somme Valley (Pamphlet)	Mr. John Lubbock, F.R.S., the Author.
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Memoires de la Societe Royale, D'Emulation, D'Abbeville, 1841 to 1860: 5 vols.; De la Creation, Essai Sur l'Origine et la Progression des Etres, par M. Boucher de Perthes: 5 vols., 12mo.; Les Masques: Biographie Sans nom. Portraits de Mes Connaissances dedies a mes amis, Par M. Boucher de Perthes: 2 vols., 12mo.	*M. Boucher de Perthes, &c., Abbeville.
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Miss Teale.
Miss Ellen Teale.
Mrs. Teasdale.
Miss Teasdale.
Miss Tennant.
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Miss Clara Tootal.
Miss Matilda Tootal.
Mrs. Waddington.
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Mrs. Whitehead.
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Mrs. F. Wood.
Miss Wood.
Miss Wurtzburgh.
Miss E. Wurtzburgh.

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EDWARD BAINES AND SONS, PRINTERS, LEEDS.

FORTY-FOURTH REPORT

OF

THE COUNCIL

OF THE

LEEDS

PHILOSOPHICAL & LITERARY

SOCIETY,

AT THE CLOSE OF THE SESSION

1863-64.

READ AT THE ANNUAL MEETING, MAY 3RD, 1864.

LEEDS:

PRINTED BY C. KEMPLAY, INTELLIGENCER OFFICE.

MDCCCLXIV.

IMPORTANT RULE

RESPECTING THE PROPERTY OF THE SOCIETY;

PASSED OCTOBER 8TH, 1860.

That in the event of the dissolution of this Society, its Property and Effects, whether real or personal, shall not be disposed of for the personal benefit of the Members, but shall be appropriated in such manner for the advancement af Science, Literature, or Art, in the town of Leeds, as shall be determined by a majority of the Members, at an extraordinary Meeting to be convened for that purpose. But that no dissolution of the Society shall take place without the consent, in writing, of a majority holding not less than two-thirds of the Proprietary Shares.

FORM OF A BEQUEST TO THE SOCIETY.

Every person desirous of bequeathing to the Society any Sum of Money, Specimens, Books, Instruments, or other Property, is requested to make use of the following Form :—

I give and bequeath to the Trustees for the time being of the Society established at Leeds, called "THE LEEDS PHILOSOPHICAL AND LITERARY SOCIETY," *for the use of the said Society, the sum of* , *to be paid out of such part of my personal Estate as I may legally charge therewith.* [Or here enumerate the Effects or Property intended to be bequeathed.] *And I direct that the Receipt of the Treasurer of the said Society for the time being, shall be an effectual discharge to my Executors for the said Legacy.*

REPORT OF THE COUNCIL

AT THE CLOSE OF THE

FORTY-FOURTH SESSION.

In taking a retrospect of the proceedings of the Society at the termination of its forty-fourth session, the Council have the satisfaction to report that no diminution of that prosperity which was so gratifying a feature at the last Annual Meeting has manifested itself, and that both as regards its financial and numerical position, the Society is in a prosperous state. From the unprecedented number of new Members and Subscribers who joined the Society at the inauguration of the new building, it could not be reasonably expected that any similar augmentation would occur. Nevertheless 76 Members and Subscribers have been elected during the past Session. In consequence, however, of several unusually heavy but unavoidable items of expenditure, trenching upon the ordinary funds, having occurred, the balance in favour of the Society is not so large as at the close of last year. But it is confidently anticipated that with the lessened claims for

next Session a similarly healthy condition may be easily regained. When all disbursements have been met it is expected there will be about £100 in the Treasurer's hands.

In the last Report reference was made to the additional amount which would be required to liquidate all claims upon the Society for the alteration of the Building, and a hope was also expressed that this sum would soon be contributed. In consequence, however, of the various calls upon the public for different local objects this expectation has not been fully realized. The entire amount received has been £11,128. 15s. 8d., while the cost has been £11,515. 13s. 11d., so that a deficiency of £386. 18s. 3d still remains against the Society! The labours of the Building and Canvassing Committees are virtually at an end, but the Council venture to repeat their hope that the Members and friends of the Society will not long allow so small a sum comparatively speaking to remain due to the Treasurer, as both the principal and interest will alike press upon the Society's resources and necessarily curtail its usefulness. For although the annual income from the great addition of new Members has considerably increased, the enlargement of the Building has also added proportionately to the necessary expenditure, and as the latter has probably not reached its full amount, it becomes a point of absolute economy so to husband the resources of the Society as to meet any unforeseen contingency in the current expenses which may occur.

Although the Council have, on several former occasions, had the melancholy duty of recording the removal by death of early and valuable Members, they have never had a more painful one than that now imposed upon them by the great loss which the Society has sustained in the death

of Mr. William Gott. The late Mr. Gott had from the first formation of the Society taken the most lively interest in its advancement, and especially in the improvement of the Museum, and was always ready with his purse to assist in the purchase of desirable objects, so as to illustrate the various departments in an efficient manner, and the Society is indebted to his liberality for some of the most valuable and costly specimens of which the Museum can boast. As soon as the plan for enlarging the Hall was suggested to him he entered most heartily into the project, and promised his influence and warm support, and to his own munificent contribution to the Building Fund, his valuable aid as a canvasser for subscriptions, and the great interest which he took in all the necessary details during its erection, as Chairman of the Building Committee, the Society are mainly indebted for the success which has crowned their efforts in the erection of a building alike honourable to the town and the country at large. The Exhibition of Art Treasures which formed so prominent a feature at the inauguration of the New Building, owed much to Mr. Gott's contributions from his valuable library of early printed books, pictures, and articles of virtu, which were placed entirely at the disposal of the Society. The Council feel that the removal of Mr. Gott has left a blank which will long be felt not only by this Society but by every public institution which had for its object the welfare of his native town, and they venture to express a hope that at no distant date some lasting memorial of Mr. Gott may be placed in the Society's Hall.

By the removal from Leeds of Mr. O'Callaghan the Society has lost the services of an active and valuable officer. During the last seven years Mr. O'Callaghan

has held the important office of one of the Honorary Secretaries, and has devoted his entire time and energies for the benefit of the Society, and to his extensive acquaintance with men of science whom he has induced to read papers, his great tact in obtaining new Members and Subscribers, and his success in soliciting contributions to the Museum, the great improvement which is manifest in the general affairs of the Institution is largely to be attributed. During the erection of the new building he took great interest in its progress, and laboured zealously for subscriptions to the fund for that purpose. In recognition of these valuable services the Council invited Mr. O'Callaghan to a public dinner at the Queen's Hotel, on the 4th of April, which was attended by a number of influential Members of the Society. In the month of October last the British Archæological Association held its Congress in Leeds, under the presidency of the Lord Houghton, D.C.L., when the Council of this Society, anxious to further the objects of that Association, placed their suite of rooms at the service of the Members, who visited Leeds on that occasion, and formed themselves into a local Committee to make the necessary arrangements for their proper reception, and they are glad to know that the proceedings of the Congress were in every way satisfactory, to the members of the Association, both as regards the objects of interest, and the facilities afforded for their inspection.

PAPERS AND LECTURES.

The Papers read at the General Meetings have been of a varied and highly interesting character; and although

on three of the evenings the gentlemen whose names were announced to read papers were unavoidably prevented from fulfilling their engagements, their places were occupied at a short notice by gentlemen of well-known ability. These were as follows:—

1. "On the Relation of the Philosophical and Literary Society, and Kindred Institutions, to the Intellectual Wants of a large Manufacturing and Commercial Town." By the Rev. Thomas Hincks, B.A., President.

2. "On the Physical Constitution of the Sun." By Edward William Brayley, Esq., F.R.S., &c.

3. "On the Varieties of Man in the Malay Archipelago." By A. R. Wallace, Esq., F.R.G.S., &c.

4. "On Roger Bacon; his Life and Works." By Thomas Marshall, Esq., M.A.

5. "On Primæval Sepulture." By the Rev. W. C. Lukis, M.A., F.S.A., of Wath Rectory, Ripon.

6. "On the Geology of the North of England." By Professor Robert Harkness. F.R.S., F.G.S., &c.

7. "On the Pyramids of Egypt." By the Rev. Canon Trevor, M.A., &c., of York.

8. "On the Sources of the Nile, and on the main requisites for their final determination." By Dr. Charles T. Beke, F.S.A., F.R.G.S.

9. "On the Early Domestication of Animals." By Francis Galton, Esq., F.R.S., F.G.S., &c.

10. "On the Unity of the Human Species." By George Rolleston, Esq., M.D., F.R.S., Professor of Anatomy in the University of Oxford.

11. "On the History of Leeds before the Norman Conquest." By Thomas Wright, Esq., M.A., Corresponding Member of the Institute of France, &c.

During the Christmas vacation two Juvenile Lectures "On the History and Progress of the Electric Telegraph," were gratuitously delivered by Mr. Dodwell, of Manchester, with numerous illustrative experiments; and, in March, a course of four Lectures was delivered by Professor David Thomas Ansted, F.R.S., on the following subjects;—"The Influence of Water in Forming Rocks;" "The Influence of Water in Modifying Rocks;" "Granite, its Origin and History;" "On the Early Races of Men, and their Contemporaries."

CONVERSAZIONE.

The annual Conversazione was held in December last, and was attended by a very large number of the members and friends of the Society, on which occasion a great variety of objects of Art and Historical interest were exhibited, as also Paintings and Photographs. At this meeting Mr. Manning exhibited the Model of the *first Locomotive Steam Engine* successfully employed on a railway, which was the more interesting from the fact that it was designed by one Leeds man (Mr. Blenkinsop), and made by another (Mr. Matthew Murray), and worked on the line of the Middleton Colliery tramway to Leeds, on the 12th of August, 1811, two years before Stephenson started his first Locomotive. Mr. Manning presented a beautiful Photograph of Blenkinsop's Locomotive Engine, framed and glazed, to the Society. After the close of the Art Treasures Exhibition last year, considerable re-arrangement of the Specimens became necessary, which prevented the opening of the Museum to the public until the 25th of May; since which period, however, upwards of 35,885 persons have visited it, ex-

clusive of Members and those whom they have introduced, which is a gratifying proof of the increasing interest taken by the public in such Institutions. The receipts from this source have amounted to £149 10s. 5d.

MUSEUM.

The Museum continues to receive many valuable accessions by donations, and as an educational collection for illustrating the higher groups in Zoology, is probably second to no provincial Museum in the kingdom.

The Earl Fitzwilliam has presented specimens of the Nylghau, Wombat, Arctic Dog, Cape Sheep, Demerara Sheep, Kangaroo, Armadillo, and Black Swan, all in a fine state of preservation.

Mr Salt, of Methley Park, having most liberally offered to kill one of his finest specimens of Alpaca, for the Society's Museum, the Council while accepting the valuable present, considered that so good an opportunity for enabling the Members to partake of the flesh, of this only partially acclimatized animal should not be lost, accordingly a dinner was prepared at the Queen's Hotel, where about 60 gentlemen assembled, and the Council had the pleasure of receiving Mr. Salt as their guest.

Mr. Arthur Lupton has presented fine specimens of the Crested Penguin, and Tangalung, and several beautifully preserved Fishes from the Mediterranean.

To Mr. Hartley, of D'Urban, Port Natal, the Society is indebted for a fine skull of the Male African Elephant, a tusk of the Female Elephant, Horns of Double Horned Rhinoceros, and Horns of the Gemsbok, Blawbock, Eland, Hartebeste, Koodoo, and other Antelopes of South Africa.

Mr. Walker, of Stanley Hall, has again enriched the Museum by a further contribution of 49 Birds, and two specimens of the Hyrax from Africa.

From Mr. R. B. Turner, has been received, a remarkably fine mature specimen of the Beaver, a genus long in request by the Society, and a specimen of the Genus Polypteris, an important illustration of the existing Ganoid Fishes, has been presented by Mr. Andrew Fairbairn.

The representatives of the late Mr. Hewitson have transmitted skins of the Adult and Young of the Three Toed Sloth, and also a Skeleton of the same animal, which specimens Mr. Hewitson had sent expressly for to British Guiana, a few months previous to his decease, to present to the Museum.

Messrs. Walker and Lomas Joy, have contributed to the British Lepidoptera a series of beautiful specimens of the Sphingidæ, and it is much to be hoped that similar contributions will be made to the other orders of Insects, which are very defective, as also to the Echinodermata, Crustacea, and British Land and Fresh Water Shells.

As several opportunities presented themselves for adding important Zoological specimens to the Museum by purchase, the Council have not allowed them to pass, and in making their selection of the most desirable, have been primarily guided in acquiring *Generic* or *Typical Forms*, as the most essential and instructive in a provincial Museum, where neither very extensive collections of species can be acquired, or the space to exhibit them obtained. By this plan therefore many rare and highly interesting examples of Mammalia have been secured, and especially in the Osteological department, the value of which as a basis for acquiring a sound knowledge of the relation of different

groups in the Animal Kingdom is now generally acknowledged, and by which alone, the beautiful and varied modifications of structure, as adapted to the diversified habits of the animals, can be correctly appreciated, amongst the most important specimens thus obtained, may be named Entire Skeletons of the Platypus, Manis, Armadillo, Lemur, Spermophilus, Chamæleon, Turtle, and Flamingo, a magnificent Skull of the Grizzly Bear, and the *immature* Skull of the Walrus, examples of which are rarely to be met with.

The principal additions in Geology and Mineralogy consist of a series of teeth and bones of the Rhinoceros and Hyæna, from Wokey Hole, in Somerset, presented by their discoverer, Mr. W. Boyd Dawkins, of the Geological, Survey, London, and from Mr. Farrer, M.P., of Ingleborough House, a nearly entire Skeleton of the Fossil Red Deer, and a portion of an Antler of the Gigantic Irish Deer, from the Dowkerbottom Cave. This latter being the second instance only of the discovery of remains of this noble Ruminant in Yorkshire.

A series of remarkably fine specimens of Encrinital Stems and Casts, masses of Purple Fluate of Lime, and Crystals of Calcareous Spar, from Derbyshire, have been received from Mr. W. H. Hebblethwaite.

ARCHÆOLOGY.

This Department has been more than ordinarily enriched by the acquisition of specimens of local and general importance. From the Rev. John Gott has been received a

valuable series of Greek Marbles, consisting of Altars, Mural Tablets, and Inscribed Stones, collected in Athens and other Greek cities by the late Benj. Gott, Jun., Esq. The interest of these relics will be much enhanced when the several inscriptions have been translated and more of their history thereby ascertained. The Rev. H. T. Simpson, Rector of Adel, has liberally deposited in our Museum the Altars, Querns, and other Relics obtained from the site of the Roman Station at Adel.

To Mr. Hartley, of Settle, the Society is indebted for an Ancient British Canoe, formed out of the solid trunk of a tree, found on the site of the old Tarn, at Giggleswick, in this county.

Mr. Farrer, M.P., of Ingleborough House, who has been prosecuting further researches in the Dowkerbottom Caves, in Craven, has transmitted a large Brass Coin of Antoninus, singularly interesting from the fact of its commemorating the supposed termination of the conquest of Britain; a fragment of a Flint Implement, a Bone Needle, the remains of a Child of the age of 2½ years taken from its Romano-British grave, and the Skull and portion of a Jaw of an ancient Orcadian, from the Knowe, near Birsay, Orkney.

Mr. Samuel Scatcherd, of Morley, has presented several interesting antique objects, formerly belonging to his late father, Norrison Scatcherd, Esq., consisting of one of those rare instruments for domestic punishment, the Brank or Scold's Bridle; a Marble Tablet, representing the Annunciation, once the property of Sir Thomas Moore; an ancient Carved Oak Panel of the Crucifixion; several Swords, &c., of the time of Charles I. and George II.

LIBRARY.

The additions to the Library have been of an important character, amongst which the Council would more especially notice, a Subscriber's copy of Roberts's Egypt and the Holy Land, 6 vols. folio, superbly bound, presented by Miss Southerne; 35 separate works on Local Topography, and the Map of the Watling Street across the counties of Durham and Northumberland, presented by the Rev. John Gott; the Journal of the Archæological Association from its commencement, 18 vols. 8vo., presented by the late Mr. S. S. Jackson; 6 beautiful Vols. of the Ray Society's publications from John Smith, Esq; the Transactions of the Historic Society of Lancashire and Cheshire, 7 vols. 8vo., by that Society; the Life and Miscellaneous Works of Dr. Young, F.R.S., presented by Miss Chambers, his niece; the Canadian Journal of Science and Art, from its commencement, 6 vols. 8vo., from the Canadian Institute at Toronto; the Report of Her Majesty's Commissioners on the Public Records of the Kingdom, 2 vols. folio. Catalogue of the MSS. in the Cottonian Library in the British Museum, folio; Select Papyri in the British Museum, folio; and the Imperial Biographical Dictionary, presented by Mr. O'Callaghan.

The various British and foreign Scientific Societies continue to transmit their several publications, but the Library is still deficient in many standard works on the different branches of Physical Science, which are required as books of reference, as also several of the Scientific Periodicals. Since the last annual Meeting a MS. Catalogue has been prepared by which it will be seen the Library now contains about 2000 volumes.

Another addition has been made to the Picture Gallery,

which was commenced last year, consisting of a fine Oil Painting by Ruysdael, presented by Mr. Arthur Lupton; and the Council have also the pleasure of announcing that three beautifully Engraved Portraits have been presented to the Society—viz., Sir Joseph Banks, by Mr. Ford; Dr. Priestley, by Mr. Ward; and Rev. Richard Bentley, by Mr. O'Callaghan, who has also presented Holograph Letters of the two last eminent men; and they hope that Portraits and Letters of two other equally distinguished Leeds celebrities, *Thoresby* and *Harrison*, will at some future time find a place in the Hall.

The collection of British Plants which has been annually increasing for a number of years and arranged upon the Linnean system has been considerably enhanced in value and usefulness through the kindness of the Rev. C. H. Middleton, who has devoted much time and labour to the complete examination and entire re-arrangement of the specimens upon the Natural system, as given in Hooker and Arnot's British Flora. The individual species have been all re-mounted and numbered, according to the London Catalogue, and are now so placed in the Library as to afford a ready reference for the Botanical Student. Mr. Middleton says the Herbarium contains about 3-4ths of the known Flowering Plants.

The groups most deficient are the *Rubi*, *Hieraciæ*, *Salices*, *Equisetacæ*, *Characeæ*, *and Filices*.

The Council have much pleasure in calling the attention of the Members to the present of a handsome Mahogany Case from Messrs. T. W. George and Company, which is now placed in the Vestibule and contains the collection of Weapons, Dresses, and various Implements, used by the natives of distant regions.

INDUSTRIAL MUSEUM.

In the Report of the Council for last Session, the importance of establishing an Industrial Museum in connection with the Society's operations, was brought before the Members, together with a statement of what steps had been taken to obtain the necessary space, and also specimens to illustrate the various industrial arts. A Sub Committee was appointed by the Council consisting of three of its Members, viz., Mr. Nunneley, Mr. Ward, and Mr. Stansfeld, to carry out the preliminary arrangements, with authority to obtain the co-operation of Mr. Jowitt and Mr. Reynolds, who have held several Meetings, and their labours have been so far successful as to promise a speedy opening of the Room appropriated for the purpose. In furtherance of this object Mr. Wm. Glover Joy has presented a handsome Mahogany Case, containing samples of the different seeds from which Oils for Commercial purposes are expressed, with samples of the Oils in glass jars. Mr. Jowitt has also sent a handsome case of Colonial Wools: the Messrs. Jewsbury, of London, various kinds of Cochineal: Messrs. Ward, specimens illustrating Kelp and its products, and Mr. Green, of London, various kinds of Sheet Gelatine. The annexed Report of the Sub-Committee furnishes a detailed statement of their proceedings.

"The Industrial Museum Committee has carried on its operations for several months. Upon taking possession of the room previously devoted to objects of Archæology, the Committee fitted it uniformly with glazed cases of French polished deal, and they are sanguine that this mode of fitting will prove successful, both as to appearance and economy. The cost of these cases was nearly defrayed

by the very liberal grant of £150, made for the purpose from the surplus profits of the Industrial Exhibition, held in Leeds, in 1858. This fund is under the control of a Committee of which Mr. Darnton Lupton is Chairman.

"The specimens so long expected from the South Kensington Museum, arrived a few months since. The collection was necessarily very miscellaneous, from being composed of objects transferred to that Institution from the International Exhibition of 1862.

"The option of selecting from these which there was reason to anticipate would be allowed was not at last given by the authorities, although a Member of this Committee was at one time permitted to inspect and schedule the specimens for this purpose.

"The whole of the specimens were divided into twelve sets, and it was one of these that was sent to Leeds.

"It will furnish many very acceptable specimens for the Museum. The authorities of South Kensington have just added to the obligations due to them by presenting between 300 and 400 glass jars, for containing specimens; also a complete set of printed Tablets for describing a Food Collection.

"The Committee have brought the objects and claims of the Museum under the notice of the able Reporter on the products of India, Dr. J. Forbes Watson, of the India Museum, and they are much gratified at finding that this gentleman is anxious to extend the influence of the Department over which he presides by enlisting the services of Industrial Museums in the provinces in bringing before the manufacturing Communities, materials capable of industrial uses.

"Applications have been made to about 60 firms for specimens of the materials employed by them in various arts, and it is gratifying to add that hardly a refusal has been received, whilst in most instances the replies have been prompt and hearty.

"So far the applications have been confined almost entirely to matters derived from the animal and vegetable kingdoms and their manufactures.

"It is an especial object with the Committee to include illustrations of all appropriate branches of industry belonging to Leeds, though they do not desire to exclude other eligible specimens.

"Finally, the Committee have issued a circular containing general information for the guidance of contributors, and have adopted a special label for specimens in order to secure uniformity in appearance. They are glad to be able to state that although circumstances have rendered the preliminaries of the scheme lengthy, it is now realized, and the number of contributors whose specimens are ready will justify the room being opened to the public at Whitsuntide."

LEEDS PHILOSOPHICAL AND LITERARY SOCIETY,

From MAY 6th, 1863, to JUNE 30, 1864.

RECEIPTS.

	£.	s.	d.
To Cash in Treasurer's hands	296	19	1
,, Do. in General Curator's hands	11	4	7½
,, Subscriptions of 80 New Proprietary Members at 21s. each	84	0	0
,, Do. of 32 Old Ordinary Members at 42s. each	67	4	0
,, Do. of 88 New Ordinary Members at 21s. each	91	7	0
,, Do. of 144 Old Annual Subscribers at 21s. each	151	4	0
,, Do. of 30 New Annual Subscribers at 21s. each	31	10	0
,, Do. of 133 Old Annual Subscribers at 5s. each	33	5	0
,, Do. of 50 New Annual Subscribers at 5s. each	12	10	0
,, Arrears of Subscriptions	30	3	0
,, Receipts at Conversazione	10	15	0
,, Rent of Cellars	40	0	0
,, Rent of Geological and Polytechnic Society (Three-quarters of a Year)	15	0	0
,, Rent of Lecture Room	22	1	0
,, Sale of Old Cases, and Sundry Receipts	8	17	0
,, Admission to the Museum	149	10	5
,, Interest from Bankers	5	11	0
	£1061	1	1½

DISBURSEMENTS.

	£.	s.	d.
By Insurance	12	7	6
,, Gas and Coke	16	13	4
,, Coals	12	1	3
,, Tradesmen's Bills	358	15	5
,, Printing and Advertising	59	3	6
,, Books and Stationery	7	16	11
,, Travelling Expenses of Lecturers	40	1	0
,, Professor Ansted for Four Lectures	25	0	0
,, General Curator's Salary	160	0	0
,, Porter's Salary	36	0	0
,, Rates and Taxes	4	17	8
,, Expenses of the Conversazione	30	13	0
,, Subscription to the Society of Arts, & Post Office Order	2	2	6
,, Postages and Postage Stamps	7	13	8
,, Purchase of Specimens for the Museum	56	1	5½
,, Preparation and Cleaning of Specimens	63	14	11
,, Carriage and Packing of Specimens and Books	11	0	6
,, Cleaning the Hall	9	4	7
,, Sundry Expenses	28	11	10½
,, Bankers' Commission	3	2	0
,, Balance in Bankers' Hands	99	16	8
,, Balance in Curator's Hands	16	3	4½
	£1061	1	1½

BUILDING FUND ACCOUNT.

RECEIPTS.

	£.	s.	d.	£.	s.	d.
To Subscriptions	10,934	14	0			
Unpaid	20	0	0			
				10,914	14	0
,, Cash for Sale of Glass,				3	10	0
,, Interest on Loan				66	10	8
,, Interest allowed by Bankers				144	1	0
Balance owing to the Bank				386	18	3
				£11,515	13	11

DISBURSEMENTS.

	£.	s.	d.
By Corporation for Paving Russell Street	11	17	8
,, Bankers' Commission	34	10	0
,, Messrs. Dobson and Chorley, Architects	363	2	3
,, Mr. Longley, for Cushions for the Lecture Room	84	10	8
,, Mr. Smith, for Chairs	21	2	0
,, Messrs. Denby & Co., for Blinds	10	7	6
,, Messrs. Dennis Lee & Walsh	92	10	0
,, Mr. S. Crofts, for Slating	41	0	0
,, Stamped Cheques	0	4	2
,, Mr. Faulkner, for Lithographic Plans	6	0	0
,, Mr. Broderick, for Plans	25	0	0
,, Mr. R. W. Simpson, for Warehouse	3517	0	0
,, Gratuity to Mr. Denny, as Secretary to the Building Committee	30	0	0
,, Messrs. Shaw and Tennant, for Conveyance	54	3	2
,, Rearing Supper for Workmen	5	0	0
,, Mr. J. Dilworth, Clerk of the Works, 67 weeks	167	10	0
,, Mr. Mawer, for Carving Columns	36	0	0
,, Mr. C. A. Keene, for Cocoa Nut Matting	27	14	6
,, Mr. F. Jackson, for Painting	77	17	0
,, Messrs. Nelson & Son, for Ironwork	294	0	0
,, Messrs. Hadden & Co., for Warming Apparatus	139	14	0
,, Mr. Hall, for Gas Apparatus	277	0	0
,, Messrs. Jas. Wilson and Son, Plasterers	460	0	0
,, Messrs. Wm. Nicholson & Son, Masons	2021	16	0
,, Mr. Samuel Powell, Plumber	907	15	0
,, Mr. Hall Thorp, Joiner	1666	0	0
,, Do. do. for Glass Cases for the Museum and Fittings for Library	1144	0	0
	£11,515	13	11
To Balance brought down	£386	18	3

SUBSCRIPTIONS

TO

THE BUILDING FUND.

	£.	s.
Armitage, William, Farnley Iron Company	20	0
Aldam, William	25	0
Armitage, W. J.	20	0
Atkinson, J., and Son	5	0
Atlay, Dr.	10	10
Alcock, Sir Rutherford	5	0
Baines, E., M.P.	60	0
Baines, Frederick	20	0
Balme, E. W.	50	0
Barr, Robert	20	0
Barry, Rev. A.	30	0
Bateson, Josh.	20	0
Barwick, J. M.	25	0
Batley, John	25	0
Beckett, William	300	0
Beckett, Sir Thomas	50	0
Beecroft, G. S., M.P.	70	0
Benson, John	25	0
Best, William	25	0
Beverley, M. B.	10	10
Binks, Benjamin	5	5
Birchall, Samuel	50	0
Birchall, J. D.	50	0
Bishop and Hewitt	5	0
Bolland, W. T.	20	0
Bolland, W. T., Jun.	20	0
Booth, William	2	2
Boothman, W. D.	20	0
Botterill, John	20	0
Bousfield, Chas.	20	0
Bray, James	20	0
Bray, John, *Newlay Hall*	50	0
Buck, W. C.	5	0
Butler, J. O.	50	0
Broadhead, Henry	10	0
Brown, James, M.P.	250	0
Brown, Samuel James	295	0
Brown, William	100	0
Briggs and Co.	20	0
Buckton, Joshua	50	0
Buckton, George	50	0
Burniston, James	25	0
Cadman, William	10	0
Chadwick, Dr.	50	0
Chadwick, Wm.	50	0
Clapham, S.	20	0
Clay, George	20	0
Cliff, Joseph	35	0
Conyers, W. H.	60	0
Cooper, John	100	0
Cooper, S. T.	100	0
Crofts, John	50	0
Crowther, Barker	10	0
Cudworth, J. W.	10	10
Charlesworth, Thomas	10	0

	£.	s.
Calverley, John	20	0
Cross, John	1	1
Devonshire, Duke of	25	0
Denison, W. B.	75	0
Davis, Edward	2	2
Dawson, Benjamin & Co.	20	0
Dibb, T. T.	20	0
Donisthorpe, G. E.	50	0
Eamonson, Rev. B.	5	0
Eddison, Frederick	20	0
Eddison, Hannah M.	20	0
Ellershaw, R. J.	20	0
Empson, Christopher	15	0
Emsley, Thomas	5	0
England, Thomas	20	0
Fairbairn, Sir Peter	100	0
Fairbairn, Andrew	100	0
Farmer, Thomas	20	0
Firth, William	20	0
Fitzwilliam, Earl	50	0
Ford, R. L.	30	0
Forster, W. E., M.P.	20	0
Foster, Dr. Edwin	5	0
Fryer Frederick	2	2
Fowler, John	3	3
Gott, William	710	0
Gott, John	500	0
Grey, Earl de, and Ripon	25	0
Greaves, Edward	20	0
Greenhow, Dr.	5	0
Greenwood, Thomas	25	0
Graham, Cyril	5	0
Hall, Thomas	75	0
Hargreaves, John	20	0
Hargrave, James	50	0
Hargreaves, J. B.	50	0
Hartley, J., *Otley*	5	0

	£.	s.
Harvey & Reynolds	5	0
Heaton, Dr.	60	0
Hebblethwaite, J. W.	10	0
Hewitson, H. W.	75	0
Hey, William	100	0
Hey, Samuel	50	0
Hincks, Rev. T.	10	0
Holdforth, J. D.	50	0
Holdsworth, W. B.	50	0
Holmes, Samuel	20	0
Horsfall, Abraham	5	0
Holt, Joseph	25	0
Holt, Henry	20	0
Hotham & Whiting	5	0
Hudson, Robert	50	0
Hudson, R. J.	25	0
Hawkshaw, John	50	0
Ikin, J. I.	5	0
Illingworth, William	20	0
Ingham, William	25	0
Irwin, Edward	30	0
Israel, Julius	20	0
Jackson, Samuel	20	0
Jowitt, John	75	0
Joy, W. G.	50	0
Joy, Walker	50	0
Kempe, William	5	0
Kemplay, Christopher	40	0
Kinnear, Thomas J.	75	0
Kirkby, Thomas	10	0
Kirkby, Frederick	10	0
Kitson, James	100	0
Knight, J. Y.	5	0
Lambert, Joseph	20	0
Land, Philemon	5	0
Lawson & Sons	60	0
Leather, J. W.	20	0

	£.	s.
Leather, J. T.	50	0
Leathley, Samuel	20	0
Ledgard, William	20	0
Ledgard, Eyre	20	0
Lee, Dennis	10	0
Lister, William	5	0
Londesborough, The Right Hon. Lord	10	0
Luccock, J. D.	50	0
Ludolf, Henry	80	0
Lupton, Arthur	200	0
Lupton, Darnton	35	0
Lupton, Joseph, *Chapeltown*	50	0
Lupton Joseph, *Armley*	20	0
Lupton, Francis	50	0
Lupton John	25	0
Mac Carthy, E. C.	5	5
Maclea, C. G.	40	0
Manning, John	15	0
March, J. O.	50	0
March, George	20	0
Margerison, J. L.	50	0
Marshall, J. G.	250	0
Marshall, H. C.	250	0
Marshall, A.	250	0
Marshall, R. D.	60	0
Marshall, J.	30	0
Martin, S. D.	10	0
Middleton, W.	20	0
Mirfin, John	20	0
Morley, George	50	0
Morfitt, John	5	0
Morphet, William	20	0
Myers, W. H. N.	25	0
Myers, W. C.	20	0
Nathan, N. P. & H.	20	0
Naylor, C.	5	0

	£.	s.
Nell, D. W.	20	0
Nelson, George	25	0
Nelson, Henry	20	0
Nicholson, W. N.	100	0
Nichols, Richard	50	0
Nunneley, Thomas	25	0
Nussey, Thomas	20	0
Nussey, Obadiah	40	0
Oates, Misses	10	0
O'Callaghan, P.	30	0
Oxley, Henry	60	0
Palmerston, Rt. Hon. Visct.	25	0
Payne, R. E.	25	0
Petty, William	20	0
Plint, T. E.	20	0
Proctor, C.	20	0
Ramsden, J. W.	20	0
Ramskill, Josiah.	3	3
Ramsbotham, Dr.	20	0
Read, Miss	20	0
Rhodes, John	370	0
Ree, Isidore	3	3
Reinhardt, George	5	0
Rhodes, Rev. J. A.	150	0
Richmond, Rev. W.	5	0
Richardson, J. H.	10	3
Riley, Thomas	20	0
Riley, Henry	3	0
Ripley, Richard	20	0
Ripon, The Bishop of	20	0
Robinson, Richard	20	0
Robinson, John	20	0
Ryder, Charles	10	10
Scholefield, William	5	0
Schunck, Ed.	75	0
Scott. B. F.	5	0
Shaw, John Hope	30	0

	£.	s.
Shaw & Tennant	20	0
Sidney, Alderman, M.P.	21	0
Simpson, R. W.	20	0
Simpson, Edw.	15	0
Smith, John	100	0
Smith, J. M.	25	0
Smith, J. E.	21	0
Smith, J. Wales	5	0
Smith, William Farrar	20	0
Smith, Beacock, & Tannett	50	0
Smith, Henry	5	0
Smith, E. J.	5	0
Stables, Jas.	25	0
Stansfeld, T. W.	100	0
Stead, Walter	20	0
Sharp, N.	25	0
Salt, Titus	50	0
Talbott, George	25	0
Tatham, Mary A.	20	0
Taylor, George	50	0
Taylor and Wordsworth	40	0
Teale, Joseph	20	0
Teale, T. P.	105	0
Tennant, Thomas	50	0
Tennant, Mrs.	50	0
Tennant, J. M.	35	0
Tennant, Robert	50	0
Tetley, F. W.	75	0
Titley, Anthony	20	0
Titley, T. A.	25	0
Tottie, J. W.	30	0
Townsley, Richard	20	0
Turkington, H. C.	10	0
Turner, R. B.	50	5
Uppleby, J. G.	50	0
Vickers, B. R.	5	0
Wade, John	25	0
Walker, Edward	20	0
Walker, Thomas	25	0
Ward, W. S.	50	0
Waud, Major	20	0
Whitaker, John	100	0
Whiteley, J. & W.	10	0
Whiteley, Thomas	20	0
Wilkinson & Co.	50	0
Wilkinson, John	25	0
Wilkinson, Josh.	20	0
Wilson, John, *Seacroft*	50	0
Wilson, John	20	0
Wilson, William	5	0
Wolff, Philip	25	0
Wood, R. H.	20	0
Wood, Harry	50	0
Wurtzburg, Ed.	20	0
Young, George	20	0
Name unknown	5	0
	£10,934	14

DONATIONS AND ADDITIONS

TO THE

SOCIETY'S MUSEUM.

Those marked thus (*) are Honorary Members; thus (†) Members of this Society.

GEOLOGY AND MINERALOGY.

A valuable Series of Teeth and Bones of the Hyæna, Rhinoceros and Horse, from Wokey Hall, Somerset	Mr. W. Boyd Dawkins, F.G.S.
Molar Teeth of the Elephant, from Ilford, Essex, and several Fossil Echinoderms, from the Chalk of Wiltshire.....	†Mr. W. S. Ward.
Specimen of Cryolite, from Greenland ...	†Mr. J. D. Luccock.
Three interesting Specimens of Calamites; Cannæformis, from Gypton Wood; and a Mass of Iron Pyrites, from the Isle of Wight.....	†Mr. Tiffany.
Six fine Specimens of Purple Fluor Spar, (Blue John); and Two beautiful Masses of Calcareous Spar, from Derbyshire; and several fine Casts of Encrinital Stems, (Screw Stones), from the Mountain Limestone of Derbyshire	Mr. J. H. Hebblethwaite.

ZOOLOGY.

Egg of the Emu, and casts of the Eggs of the Dinornis and Æpyornis; Specimen of Cyclodus-nigro-luteus from Australia.	†Mr. O'Callaghan.
Specimen of the Rumpless Fowl, preserved by C. Waterton, Esq., of Walton Hall.	Dr. Hobson
Very fine Specimen of the Father Lasher, or Long Spined Cottus, caught at Whitby	†Mr. Abraham Horsfall.

Very fine Horn of the square-nosed Rhinoceros; (Rhinoceros Simus) of South Africa	†Dr. Craig.
Skins of the Adult and Young of the Three-Toed Sloth, and Skeleton of the same Animal, from British Guiana	The late Mr. W. W. Hewitson.
Horns of the Sable Antelope, from South Africa	Mr. John Middlebrook, Birstal.
Very fine Skull of the Male African Elephant; Tusk of Female Elephant; Two fine Horns of the Single-horned Rhinoceros; Horns of the Double-horned Rhinoceros; Two very fine Tusks of the Hippopotamus; very fine Skulls and Horns of the Gemsbok, Blawbock, Eland, Hartebeste; and Three pairs of the Horns of the Koodoo	*Mr. W. Hartley, D'Urban, Natal.
Fine Specimen of the Green Sandpiper, shot at Woodhouse Carr, April 23, 1863.	Mr. Robert Sowrey.
Twenty Birds from British Columbia, Specimens of the Colobus Satanis, Echidna Aculeata, and Paragalea Lagotis; Skeletons of the Manis, Platypus Anatinus, Flamingo, Spermophilus, Chameleon, Lemur Catti, and Coypu Chelonia; Specimens of the Chinese Jacana; Sonnerats Jungle Fowl.....	Purchased by the Society.
Very fine Specimens of the Alpaca and Fallow Deer	†Mr. Salt, Methley Park.
Remarkably large Specimen of the Cross between the Irish Wolf Dog and Mastiff	Mrs. O'Callaghan
Two Specimens of the Saw Fish	Mr. Samuel Waite.
Fine Specimens of the Tangalung from Malacca; Crested Penguin; and eight beautifully preserved Fish from the Mediterranean.....	†Mr. Arthur Lupton.
Fine Specimen of the Platypus Anatinus...	†Mr. J. D. Luccock.
A Puff Adder from the Cape of Good Hope	†Mr. S. Hey.
73 Specimens of British Land and Fresh Water Shells	Mr. S. W. North, York.
Specimen of Polypterus, from Fernando Po	†Mr. Andrew Fairbairn.

Very fine preserved Specimens of the Wombat, Nylghau, Arctic Dog, Cape or Fat-tailed Sheep, Demerara Sheep, Black-handed Kangaroo, Hairy Armadillo, and Black Swan	*The Right Hon. Earl Fitzwilliam, Wentworth House.
Specimen of the Egret from South Africa...	Mrs. Walker, Stainley Hall, Ripon.
49 Birds, including Bustards, Darters, Crested Pintado, Plantain Eater, Coot, Water Hen, Kingfishers, Cormorant, Ducks, Goose, Crow, Partridges, &c.; and Two Specimens of the Cape Hyrax	Mr. Walker, Stainley Hall.
Specimen of Female Emu.....	†Mr. Joseph Holt.
Beautiful Specimens of Gorgonia, from New Zealand	The Right Hon. the Earl of Dartmouth.
Pair of Black and Blue Creepers, from Bahia	†Mr. J. C. Knight
Specimen of the Globe Diodon, from the Nile.....	Miss Osburn, Jerusalem.
Fine Specimen of the Beaver, from Canada	†Mr. R. B. Turner.
Specimens of the Black Spider Monkey, Southern Lynx, Short-tailed Kangaroo, Skulls of the Grizzly Bear and Young Walrus, Iguana, Marbled Moniter, Labrador Jumping Mouse, Owen's Chameleon, Marmot, and Beaver Rat	Purchased by the Society.
Skull of the Polar Bear	†Mr. Calvert.
Beautiful Specimen of the Civet Cat from Africa	†Mr. T. Ambler.
Specimen of the Knotty Cushion Star (Goniaster Equestris)	Mr. W. Lamb.
Jaws of a Species of Ray; Snout of the Sword Fish; Valves of a gigantic Pinna from the Western Coast of Africa	Mr. Edward Thomas, by Colonel Francis.
Fine Specimen of the Otter, from Wales...	Mr. H. Horsfall.
Two Rattles from the Tails of Rattlesnakes	Mr. J. L. Flinn.
Specimen of the Taguan (Petaurista Taguanoides)	†Mr. Morley.
An extensive Collection of Scottish Plants	*Mr. H. Denny.
Beautiful Specimens of all the British Sphingidæ	†Messrs. Walker and Lomas Joy.

ARCHÆOLOGY AND ETHNOGRAPHY.

Portion of a Quern, (made of Vesicular Trap, from the Quarries of Andernach-on-the-Rhine), brought from the ancient Military Station of Housestead, on the Roman wall (Borcovicum).....	†Mr. O'Callaghan.
Ancient British Canoe, made from the Trunk of a Tree, found in draining the site of the old Tarn, at Giggleswick, in Craven.....	Mr. Wm. Hartley, Settle.
20 small Brass Roman Coins, found at Wroxhall, Isle of Wight	†Mr. G. S. Beecroft, M.P.
Four Silver Pennies of Edward, found at Malton	Mr. W. C. Copperthwaite, Malton.
A Brank or Scold's Bridle; Bronze Celt; Roman Amphora; Carved Oak Pannel of the Crucifixion, and Sculpture in Alabaster, representing the Annunciation, once the property of Sir Thomas More; a Broad Sword; Powder Flask; and Cannon Balls, from Culloden; Brass Tobacco Stopper, taken from the pocket of a Soldier on the field of Culloden; Swords of the Times of Charles the I. and George I.....	Mr. Samuel Scatcherd, Morley.
Mediæval Stone Utensil, found at the Manor Grange, Headingley	The Right Hon. the Earl of Cardigan.
Several interestiug Relics from the Dowkerbottom Cave, Craven, consisting of a large Brass Coin of Antoninus, commemorating the Conquest of Britain; (obverse, ANTONINVS, PIVS, AVG. P.P.T.P., COS.; a radiated Head of the Emperor to the right reverse, BRITANNIA COS. IIII.; a female figure seated on a rock; in an attitude of dejection, before her a large Oval Shield and Military Standard;) a Fragment of a Flint Implement; a Bone Needle; Roman Pottery; the Remains of the Skeleton of a Child of the age of 2½ years, found in its Romano-British grave in the hard Stalagmite at the bottom of the Cave; and the Skull of an ancient Orcadian from Birsay	†Mr. James Farrer, M.P., Ingleborough House.

Flint Celt, found at St. John's Vale, near Keswick, Cumberland; Limestone Celt, found near Bridekirk, Cumberland.....	†Mr. R. D. Marshall, Cookridge Hall.
Mummies of the Ibis and Hawk, from Egypt; Soft Paper Impressions, from Hieroglyphic Inscriptions at Karnak ...	†Mr. G. Morley.
Very perfect and unusually formed Upper Stone of a Quern, found in an old wall near Cookridge	†Mr. O'Callaghan.
An original Impression of the Great Seal of Henry VIII, attached to a Deed.....	Mr. Wm. Towler.
Several interesting Roman Remains, from Adel, consisting of Three Votive Altars, one Inscribed Deae Brig; an Inscribed Stone; 12 Querns; and Portion of a Roman Column	The Rev. Henry Traile Simpson, Incumbent of Adel.
Specimens of Mediæval Pottery; Two small Brass Coins of Constantine, and a Leeds Token of 1667, found in excavating the Trench at Barwick-in-Elmet	*Mr. Thomas Wright, M.A., F.S.A., &c., &c., London.
A valuable Collection of ancient Greek Marbles, including fragments of Statues; Altars; Mural Tablets; and Inscribed Stones, collected in Athens, and other Greek cities by the late Benjamin Gott, Jun., Esq.	Rev. John Gott, M.A., Great Yarmouth.

MISCELLANEOUS.

A series of Specimens of Arsenical Ore; Lump Arsenic; and Ground Arsenic in Glass Jars	Messrs. Jennings, Swansea.
A handsome Mahogany Case containing a series of the Different Seeds, from which Oils are expressed for commercial purposes, with Samples of the Oils in Glass Jars	†Mr. W. G. Joy.
Curious Brass Heart Shaped Casket, taken from a Mausoleum at Lucknow...	†Mr. Ferns.
Mahogany Case containing Twelve Samples of Colonial Wools, used in the manufactures of Cloth in this District.	†Messrs. Robt. Jowett & Sons.

Photograph of Blenkinsop's Locomotive Engine, used at the Middleton Colliery, the first Locomotive which was successfully and commercially brought into use, framed and glazed	†Mr. J. Manning.
A fine Oil Painting by Ruysdael	†Mr. Arthur Lupton.
Carved Calabash, and Specimen of Lignite, from the bottom of the Dead Sea...	Mr. E. Thomas, by Col. Francis.
Fine Portrait and Holograph Letter of Richard Bentley, D.D.; a Sheet of Lithographic Fac-similes of Letters of Distinguished Personages; War Club of an African Warrior.....	†Mr. O'Callaghan.
Portion of a Log of Mahogany perforated by the Teredo Navalis	Mr. M. Benton.
A series of Specimens illustrating the Manufacture of Flax	†Messrs. Marshall & Co.
A series of Specimens of Lichens, illustrating the Manufacture of Archil, Cudbear, &c.....	Messrs. Wood & Bedford.
A series of Specimens illustrating the Manufacture of Cocoa and Chicory	Mr. Thorne.
Specimens of Sheet Gelatine.....	Messrs Green, London.
Specimens illustrating the Manufacture of Alpaca and Mohair	Messrs. Salt, Saltaire.
Specimens illustrating the Manufacture of Paper	Messrs. Stocks.
An extensive series of Grain, various Cereals, &c.; Samples of Wools, Flax, Oil, Tobacco, Vegetable Fibres, and Dyeing Materials; and 300 Glass Jars for exhibiting Specimens, and Descriptive Tables, for Food Preparations	The Committee of the South Kensington Museum.
Portion of an Oak Beam, from an Old House in a yard in Swinegate, taken down in 1863, upon which are carved the Armorial Bearings of the Howard family	†Dr. Heaton.
Specimens illustrative of the Manufacture of Flannel, &c.	Messrs. J. Butterworth and Son, Rochdale.
A series of Specimens illustrating Kelp and its Products.....	Messrs. Ward and Co., Glasgow.

Fine Engraved Portrait of Dr. Priestley...	†Mr. W. S. Ward.
Holograph Letter of ditto.....	†Mr. O'Callaghan.
Fine Engraved Portrait of Sir Joseph Banks, F.R.S., Framed and Glazed ...	†Mr. R. S. Ford.
Panoramic View of Leeds	Mr. Fowler.
Drawing from Nature of a Specimen of Proteus Anguinus, Framed and Glazed.	†Mr. T. P. Teale. F.R.S.

LIBRARY.

Journal of the Royal Dublin Society, Nos. XXIX. XXX.	The Royal Dublin Society.
Climate, an Enquiry into the causes of its differences, and into its influence on Vegetable Life, by Dr. Daubeny.	†The late Mr. William Gott.
History of the Species of Crocus, by the Hon. and Rev. Wm. Herbert	†Mr. R. Arthington.
Miscellaneous Discourses concerning the Dissolutions and Changes of the World, by John Ray, 1792, 1 vol., 8vo.....	†Mr. John Cross.
Annual Report of the Smithsonian Institution for 1861	The Smithsonian Institution.
Transactions of the Academy of Science of St. Louis, vol. 11, No. I.	The Acadamy of Science of St. Louis.
The Boston Journal of Natural History, vol. 7, Nos. II., III.; Proceedings of the Boston Natural History Society, vol 9; Constitution and Bye Laws of the Boston Society of Natural History	The Boston Society of Natural History.
Annual Report of the Trustees of the Museum of Comparative Zoology for 1862, Cambridge, Massachusetts	The Trustees of the Museum of Zoology, Cambridge, Massachusetts.
Report of Lieutenant Colonel J. D. Graham on Mason and Dixon's Line, Detroit, Michigan, U.S.	Lieut. Col. Graham, U.S. Topograpical Engineers.
Report on the Coast Survey of the United States, for 1859 and 1860, 2 vols. 4to...	The American Government.
Report on Coal, Coke, and Coal Mining...	The North of England Institute of Mining Engineers, Newcastle.

The Greenwich Observations for 1861, 4to.	The Astronomer Royal, Greenwich Observatory.
Transactions of the American Philosophical Society, 1860	The American Philoshphical Society, Philadelphia.
Twenty Fifth Annual Report of the Royal Institution of Cornwall	The Royal Institution of Cornwall.
A few notes on Sir Charles Lyell's Antiquity of Man, and Professor Huxley's Evidence as to Man's place in Nature, by John Crawford, F.R.S., &c.....	The Author.
Journal of Geological Society of Dublin, vol. 10, part II.....	The Dublin Geological Society.
A History of Egyptian Mummies, and an Account of the Worship and Embalming of the Sacred Animals of the Egyptians, by Thos. Joseph Pettigrew, F.S.A., 4to.	The Author.
Roberts's Egypt and the Holy Land, with Coloured Plates, subscriber's copy, superbly bound in Russia, 6 vols. folio...	Miss Southerne.
The History and Antiquities of Harewood in the County of York, by John Jones, 4to., (large paper)	The Author.
The Fabric Rolls and Documents of York Minster, or a Defence of the History of the Metropolitan Church of St. Peter, York, by John Browne, 8vo.....	The Author.
On the Polyphony of the Assyrio-Babylonian Cuneform Writing, a letter to Professor Renouf, by Edward Hincks, D.D., pamphlet..... .	The Author.
Proceedings of the Royal Institution of Great Britain, vol. 4, part 1 and 2	The Royal Institution.
Journal of the Archæological Association of Great Britain, from the commencement, 18 vols., 8vo.....	The late Mr. S. S. Jackson.
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The Hon. Richard Hill, Member of Her Majesty's Privy Council for Jamaica, Corresponding Member of the Zoological Society of London, *Spanish Town, Jamaica.*

The Right Hon. Lord Londesborough, *Grimston Park, Yorkshire.*

Capt. James Holt, A.D.C., Government House, *Auckland, New Zealand.*

The Very Rev. Walter Farquhar Hook, D.D., F.R.S., Dean of Chichester, &c., *Chichester.*

William Hopkins, M.A., LL.D., F.R., F.G.S., *Cambridge.*

The Chevalier Michelotti, *Turin.*

The Right Hon. Lord Monteagle, *London.*

Sir Charles Nicholson, Bart., D.C.L., &c., *London.*

Lawrence Oliphant, F.R.S., *London.*

Wm. Osburn, M.R.S., Lit., *Leeds.*

Richard Owen, M.D., D.C.L., LL.D., F.R.S., Foreign Associate of the Institute of France, &c., *London.*

C. C. Oxley, *Redcar.*

Sir Harry Parkes, K.C.B., *China.*

Sir Joseph Paxton, M.P., *Chatsworth.*

Mons. Boucher de Perthes, President Soc. d'Emul. Imp. d'Abbeville, *Abbeville.*

John Phillips, M.A., LL.D., F.R.S., F.G.S., &c., Reader in Geology in the University of Oxford.

Lieut.-Col. Sir Henry Rawlinson, K.C.B., F.R.S., M.R.A.S., &c., *London.*

The Right Hon. the Earl de Grey and Ripon, F.R.S., F.G.S., *Studley Royal, Ripon.*

The Lord Bishop of Ripon, F.R.S., *the Palace, Ripon.*

George Gilbert Scott, F.S.A., R.A., *London.*

Rev. Adam Sedgwick, M.A., F.R.S., Woodwardian Professor of Geology in the University of Cambridge.

Gustave Seyffarth, A.M., D.D., Ph.D., Professor in the Concordia College, St. Louis, United States.

Rev. Wm. Sinclair, M.A., *Pulborough Rectory, Sussex.*

Capt. Edmond Smyth, *Almora, Bengal.*

Col. Sykes, M.P., F.R.S., &c., *London.*

John Robert Tennant, *Kildwick Hall.*

Rev. Edward Trollope, M.A., F.S.A., Prebendary of Lincoln, *Leasingham.*

Rev. Robert Walker, M.A., F.R.S., Reader in Experimental Philosophy in the University of Oxford, *Oxford.*

Charles Waterton, Hon. Member of the Yorkshire Philosophical Society and Bristol Institution, *Walton Hall.*

Rev. William Whewell, D.D., F.R.S., F.G.S., and Master of Trinity College, Cambridge.

Thomas Wright, M.A., F.S.A., M.R.S.L., Member of the Institute of France; Corresponding Member of the Society of Antiquaries of Normandy; of the Royal Society of Northern Antiquaries of Copenhagen; of the Society of Antiquaries of Scotland, &c., &c., *Brompton.*

C. KEMPLAY, PRINTER, INTELLIGENCER OFFICE, LEEDS.

FORTY-FIFTH REPORT

OF

THE COUNCIL

OF THE

LEEDS

PHILOSOPHICAL AND LITERARY

SOCIETY,

AT THE CLOSE OF THE SESSION

1864–65.

Read at the Annual Meeting, May 2nd, 1865.

LEEDS:
PRINTED BY EDWARD BAINES AND SONS.

MDCCCLXV.

IMPORTANT RULE

RESPECTING THE PROPERTY OF THE SOCIETY.

PASSED OCTOBER 8TH, 1860.

That in the event of the dissolution of this Society, its Property and Effects, whether real or personal, shall not be disposed of for the personal benefit of the Members, but shall be appropriated in such manner for the advancement of Science, Literature, or Art, in the town of Leeds, as shall be determined by a majority of the Members at an extraordinary Meeting to be convened for that purpose. But that no dissolution of the Society shall take place without the consent, in writing, of a majority holding not less than two-thirds of the Proprietary Shares.

FORM OF A BEQUEST TO THE SOCIETY.

Every person desirous of bequeathing to the Society any Sum of Money, Specimens, Books, Instruments, or other Property, is requested to make use of the following Form:—

I give and bequeath to the Trustees for the time being of the Society established at Leeds, called "THE LEEDS PHILOSOPHICAL AND LITERARY SOCIETY," *for the use of the said Society, the sum of , to be paid out of such part of my personal Estate as I may legally charge therewith.* [Or here enumerate the Effects or Property intended to be bequeathed.] *And I direct that the Receipt of the Treasurer of the said Society, for the time being, shall be an effectual discharge to my Executors for the said Legacy.*

REPORT OF THE COUNCIL

AT THE CLOSE OF THE

FORTY-FIFTH SESSION.

THE return of another Anniversary of the Leeds Philosophical and Literary Society demands from the retiring Council a review of its proceedings during this its forty-fifth Session. It is gratifying to be able to state that its numbers continue to increase, and that its ordinary finances are in a satisfactory position.

During the year that has just passed the Society has lost 28 Members and Subscribers by death and removal, but this loss has been compensated by the election of 50 new Subscribers.

The balance against the Society on the Building Account, which at the close of the last Session was £386 18*s.* 3*d.*, has been reduced by a Donation of £50 from H. C. M. Ingram, Esq., and by the transfer of £100 from the Ordinary Funds of the Society, and now stands at £246 6*s.* 3*d.*, after payment of £9 8*s.* for interest. The Council earnestly urge upon their successors the great importance of liquidating this balance as speedily as possible by means of fresh contributions; for the current income is not sufficient to maintain the effective working of the Society, and also to pay off the debt, even by protracted instalments.

The Council have found it advisable to expend a much larger sum than usual in the purchase of books, as will be more particularly explained in that portion of the Report which relates to the Library; with this exception, the expenditure of the Society has been kept upon an economical scale, so that after transferring the sum of £100 to the Building Fund, as before mentioned, a balance of £94 17*s.* 9*d.* still remains on the Ordinary Account in favour of the Society, in the hands of the Treasurer, and £20 7*s.* 3½*d.* in those of the General Curator.

The Society has to deplore the loss, by death, of one of its most valued members, Mr. J. Hope Shaw, who had for a long series of years taken a leading part in the affairs of the Society, as an Officer and Member of the Council, and as the reader of many valuable Papers, amongst which were the following :—

1. "On Capital Punishment." Read October 21st, 1842.
2. "On the Origin, Progress, and Present State of the English Jury System." Read October 20th, 1843.
3. "On the History and Effects of the Feudal System in England." Read October 18th, 1844.
4. "On Capital Punishment." Read December 17th, 1847.
5. "On the History of English Municipalities." Read October 29th, 1854.
6. "On the Origin of the English Parliament." Read October 30th, 1855.
7. "On the English Parliament, from the Reign of Edward the First to the Revolution of 1688." Read October 21st, 1856.

Mr. Shaw was ever ready to give the Institution the advantage of his great legal knowledge upon any point

affecting its interests. He had been a Member of the Council for a long series of years, and had filled the highest office, as President, on six occasions, during which time he devoted himself most energetically to its interests, and at great personal inconvenience was most constant in attendance at its meetings. He was of great assistance to the Society in various investigations of the accounts, and the regulation of its expenditure, and took a prominent part in the attempt to amalgamate with the Leeds Library.

The following is a list of the communications read during the past Session, which fully sustained the high character of the Society :—

1. "On some of the Benefits which Arts and Manufactures have derived from Chemistry." By Dr. Crace Calvert, F.R.S., F.G.S., &c. Read October 18th, 1864.

2. "The Doctor Profundus." By the Dean of Chichester, F.R.S. Read November 1st, 1864.

3. "On St. Cuthbert." By the Rev. T. R. Green, M.A., of London. Read November 15th, 1864.

4. "The Holy Land in its Natural Aspects." By the Rev. H. B. Tristram, M.A., F.L.S., &c. Read December 6th, 1864.

5. "The Conversazione." Held December 13th, 1864.

6. "On the Subterranean Explorations in Jerusalem." By Edward Atkinson, Esq. Read December 20th, 1864.

7. "On the Red River Settlement and other British North American Possessions." By Lord Viscount Milton, F.R.G.S., and Dr. Cheadle. Read January 3rd, 1865.

8. "On the Scottish Borders." By the Rev. C. H. Hartshorne, M.A., &c. Read January 17th, 1865.

9. "On Force; its Transformations, its Indestructibility, and its Origin." By Dr. Heaton. Read February 7th, 1865.

10. "On Mosaics; their Origin, Different Kinds, and Progressive Development; and on the Introduction of Enamel-Mosaic into England." By Dr. Antonio Salviati. Read February 21st, 1865.

11. "On the Vedas, or the Ancient Sacred Books of the Brahmins." By Professor Max Müller, M.A. Read March 7th, 1865.

12. "On Modern means for Naval War." By J. Scott Russell, Esq., F.R.S. Read March 21st, 1865.

13. "On the Names of Places in the British Islands and North-West of France." By the Rev. Dr. Henderson. Read April 4th, 1865.

14. "On the Arctic Regions." By Dr. Rae, R.N. Read April 18th, 1865.

THE CONVERSAZIONE.

The Conversazione was held on the 13th of December, when an unusually large number of guests assembled, for whose gratification a great variety of objects of interest were exhibited. Amongst the Works of Art were a most valuable series of Original Sketches, by eminent English artists of the last and present centuries, contributed by Mr. John Holmes; an extensive collection of exquisite Photographs; also Drawings by townsmen.

Amongst the chief novelties of the evening may be mentioned the Patent Hydraulic Coal-Cutting Machine, manufactured by Messrs. Carrett and Marshall, which was exhibited in motion. Mr. W. E. Marshall briefly described the principles of its construction.

The Society was deeply indebted to Mr. Louis J. Crossley, of Halifax, for arranging an extensive series of Telegraphic communications with the principal towns in the kingdom, worked by an efficient staff of assistants connected with the United Kingdom Telegraph Company, by means of whom messages were sent and replies

received during the evening. Mr. Crossley gave an interesting account, illustrated by diagrams and instruments, of Telegraphy, and of Morse's system of Printing by Electricity. He also offered a few remarks on the subject of Sub-Marine Telegraphy, and exhibited specimens of the Cable used for the first Atlantic Cable, and that now being manufactured for the purpose, and explained the great improvements which had been made in the latter.

The President exhibited a series of beautiful Photographs of the Skeleton of *Moa robustus*, lately presented to the Museum of the York Philosophical Society, and gave a short account of the discovery, in New Zealand, of this unique and extremely valuable specimen, referring to the evidence which it affords of the recent extinction of this bird. These Photographs were transmitted as a present to this Society by the Council of the York Society.

Mr. Reynolds exhibited the combustion of the Metal Magnesium, and also two or three forms of lamp designed for effecting this object.

MUSEUM.

The number of visitors to the Museum during the past Session has been 42,014; whose payments, amounting to £175 1*s.* 2*d.*, are in increase of those of last Session, which embraced thirteen months.

Although the contributions to the Museum have not been quite equal in number to those of the last Session, they embrace several very important accessions, a few of which demand more than ordinary notice, especially those

from our townsmen and former benefactors, Mr. Noble and Mr. Morley. The first consisting of 11 Quadrupeds, a Skeleton of the Echidna, 31 Birds, a Case of Insects, and several Reptiles from Queensland, Australia. By this timely accession of the Skeleton of the Echidna, which has long been a desideratum, the Museum now possesses perfect osteological illustrations of the only *two genera of Monotremata* known. From Mr. Morley has been received an extensive and truly valuable collection of specimens in various departments, embracing a very fine Mummy of the Crocodile, and several smaller examples from the Catacombs at Maabdeh, near Manfalout, Upper Egypt, several Skulls of Mummies, Greco-Egyptian Terra-Cotta Figures, 34 Sepulchral Figures, Beads, and other Relics from the tombs of Ancient Egypt, two specimens of the Chameleon, Lizards, Shells, Horns of the Rhinoceros, Skull of the Grampus, a series of Fossils from the Gault of Folkstone, several beautiful Crinoids and Zoophytes from the limestone of Dudley, and 132 Volcanic Rocks from the Lipari Islands, Etna, and Sicily.

Foremost amongst the Geological additions must be classed the acquisition of two remarkably fine Skulls of extinct Bears from Ireland, which had been transmitted to Leeds for sale. The possession of specimens of so much interest and value immediately became an object of no small consideration, and by the liberality of Mr. J. G. Marshall, Mr. Arthur Marshall, Mr. J. Hamilton Richardson, and Mr. Andrew Fairbairn, they were immediately purchased and presented to the Society's Museum, which is now probably the only provincial Museum, with the exception of the Woodwardian, at Cambridge, possessed of Skulls of the extinct Bears of Britain.

The Society is deeply indebted to Mons. Lartet, of Paris, and Henry Christie, Esq., of London, and also to Mr. J. Jowitt, and Mr. Farrer, of Ingleborough House, by whom the suggestion on behalf of this Society was made to Mons. Lartet and Mr. Christie, for a large Slab of Breccia, from the Dordogne Caves of Les Eyzies, in France; as also numerous Flint Implements, Chippings, Bones and Teeth of the Rein Deer, Ox, and Horse, and Lance Heads made from Rein Deer bones, from the same cave. When objects of a nature bearing so closely upon the early history of man are exciting so much interest throughout Europe, a contribution obtained direct from this locality, by such eminent geologists as Mons. Lartet and Mr. Christie, is considerably enhanced in value, and forms a most important accession.

Mr. John Holmes has presented the Frontal Bone and Horn Cores of *Bos primigenius*, found near Doncaster.

The Honourable Richard Hill, of Spanish Town, amongst other contributions during the past Session, has sent the Skull and Ribs of the *Manatee*, from Jamaica, which with the two fine Skulls of the *Dugong*, purchased by the Society, illustrates very fully the *Herbivorous* Cetaceans, before *wholly unrepresented* in our Museum.

Mr. Nussey, of Birstal, has presented a fine specimen of the Chacma or Ursine Baboon, and Temmincks Manis, from South Africa.

Your former Honorary Secretary, P. O'Callaghan, Esq., LL.D., D.C.L., has kindly contributed two rare Birds, the great Ural Owl, and the White Falcon of Australia, both important acquisitions.

From the Warwick Museum have been obtained, by exchange, through the intercession of the above gentleman, two valuable additions, consisting of remarkably fine specimens of the Australian Jabiru and the Channel Bill, birds long in request by the Curator.

Mr. J. N. Brigg has again presented some interesting specimens from South Africa, including the Black-backed Jackal, two species of Antelopes, the Hyrax, and several Lizards.

Mr. W. H. Broadhead has mounted and presented 87 species of British Shells.

A very fine specimen of the Emerald Bird of Paradise has been given by Miss Roberts.

Mr. J. E. Nelson, during his passage from Australia, secured a noble example of the Albatross for our Museum; and an extremely fine pair of American Eagles has been sent from a former Member of the Society, Mr. Abraham Clapham, of Scarbro'.

Captain Blake, of Skipton, has presented to the Society a Mummy of a Crocodile, in very high state of preservation, from Medinet Abou, and a specimen of the Crocodile from the Nile, brought from Egypt by himself.

As opportunities not unfrequently occur of obtaining objects of interest and value, by *purchase only*, the Curators have thus secured several highly important specimens illustrating typical forms, including that singularly rare animal the Cuscus, the only Marsupial of the Indian Archipelago, Skulls of the Bison, fine Skulls and Ribs of the Dugong, from Australia, specimens of the Canadian Lynx, Cacomixle, White-lipped Marmosette, Galeated Curassou, Goshawk, Sooty Albatross, Skeleton of the

Glutton, and a specimen of *Pterygotus bilobus*, from the Ludlow rock of Lanarkshire.

The arrangement of the several collections is proceeding as rapidly as circumstances will allow. The British Land and Fresh Water Shells, a large proportion of the Foreign Shells, and the British Zoophytes have been mounted on glass tablets, the latter of which are under the special supervision of your President, whose intimate knowledge of this class of Invertebrates will ensure their correct nomenclature. The British Insects, with the exception of the *Diurnal Lepidoptera*, which have been replaced by the Messrs. Joy, have long been a reproach to the Museum, from their age and the injurious effects of light. They are now under re-arrangement, with the addition of numerous fresh specimens, especially in the orders *Coleoptera*, *Diptera*, *Homoptera*. To render these Orders more complete, several very important Generic forms have been purchased; in addition to which the Society is deeply indebted to Mr. Ludolf, and Dr. Moore, of Lancaster, for valuable contributions of specimens. The Insects and British Land and Fresh Water Shells will henceforth be kept in drawers, to which access can only be had by application to the Curator, in consequence of the injury which such specimens sustain by roughness in opening the drawers. The great facility which a *named and arranged* collection of British Insects will afford to those who wish to study this delightful branch of Natural History will, we hope, be fully appreciated by Students in the town and district, who may also be stimulated to increase the collection by their own personal exertions.

The Council trust that before the opening of another

Session the professional assistance of some eminent metropolitan geologist will be obtained to aid the Curator in carefully naming the truly valuable and extensive collection of Fossil Organic remains in the possession of the Society, which is a task of no trifling extent, and could not be accomplished by the unaided labour of one officer. By the former method, which has been adopted by other provincial Societies, the interest and intrinsic value of the collection will be very considerably increased, at a moderate outlay.

In British Archæology, the Council especially call attention to the remains of some rare examples of Sepulchral Vases, Jet Beads, Flint Implements, and Human Bones from a Tumulus on Esketh Moor, near Thirsk, presented by your Member, Mr. Fox, C.E.

As other Tumuli were indicated in the same locality, your Assistant Curator proceeded to the spot for the purpose of carrying out fresh explorations. These, however, were not productive of any important results, as it was ascertained the Barrows had been previously despoiled. Mrs. Hamer, of Hawnby, however, presented a nearly perfect Skull of probably a Romano-Briton, which had been disinterred from a Tumulus upon her estate.

The Industrial Museum has received several additional illustrations of the industry of the neighbourhood, as also other specimens, including:—

A valuable Series of Specimens, exhibiting the Flax Manufacture, from the Flax Plant to the Finished Sewing Thread. Presented by Messrs. Marshall and Co.

A similar Series, illustrating the Woollen Manufacture, from the Unscoured Wool to the Dyed Cloth. Contributed by Messrs. B. Gott and Sons.

A Series to illustrate the Worsted Manufacture. From Messrs. Stansfeld, Brown, and Co.

Of the Alpaca and Mohair. From Messrs. Titus Salt and Co.

Of the Continental Wools. From Mr. John Jowitt.

The Flannel Manufacture. From Messrs. Butterworth, Rochdale.

The Brush Manufacture. From Messrs. J. Broadhead and Sons.

The different Manufactures from the Agava Fibre. By the Patent Agava Fibre Company of Newlay.

The Cocoa and Chocolate Manufacture. From Messrs. Henry Thorne and Co.

The Mustard Manufacture. From Messrs. J. and J. Armistead.

The Tinctorial Lichens and their Products. From Messrs. Wood and Bedford.

The Manufacture of Paper, from the various kinds of Rags to the Finished Writing Paper. From Messrs. Joseph Town and Sons.

That of Brown Paper, from Old Ropes and Sacking. From Messrs. Niell and Co.

The Glass Manufacture, illustrated by a splendid Plate of Enamelled Glass, and the Rough and Cut Glass Processes, as exhibited in the domestic articles of life. By Messrs. T. and R. Lee.

The Dyes obtained from Guano. From Mr. Rumney, Manchester.

The Cork Carpeting: its various stages. By Mr. Roodhouse.

An extensive Series of Specimens, illustrating the various Manufactures of Hemp, Jute, and Shoddy, obtained and presented by Mr. Ludolf, who has shown great zeal, from the commencement of the Industrial Museum, in furthering its objects.

The Manufacture of Isinglass. From Mr. James Vickers, of London.

Various Dye Woods. From Mr. S. Leathley Nussey.

Manna from Mount Sinai, Preserved Apricots, Dates, Almonds, and Egyptian Lentils, and other food preparations from Egypt and Palestine. Presented by Mr. George Morley.

A Mass of Berry Pemmican. From Dr. Rae.

To Mrs. Reynolds the Society is indebted for the preparation of Three Large Diagrams, illustrating the Consumption of *Tea* and *Sugar*, and figures of the Starch granules in different Vegetables.

From Messrs. Harvey and Reynolds has been received a large and exquisite Photograph of a Panoramic View of Washington, by an American Artist.

In conclusion, the Council feel called upon specially to acknowledge the following additional contributions towards the purchase of cases necessary for the display of the collections in this department of the Museum,—Mr. John Jowitt £20, Mr. Ludolf £20, Mr. Ward £20; and they take this opportunity of expressing their gratification at the great interest which is evinced by the visitors generally in examining the contents of the Industrial Museum, even in its present *rudimentary* condition. They also venture to express a hope that further illustrations of the Woollen Manufactures, and also those of Silk and Cotton, will speedily be added to the collection.

LIBRARY.

Although the Library has not had so large a number of contributions as during last year, it continues to receive the proceedings and publications of various Academies and Scientific Societies both in Great Britain and Foreign States, transmitted by them; amongst the latter the Society is greatly indebted to the Smithsonian Institution at Washington, not only for the publications of that body but also those of the American Government and the other Scientific Institutions in the United States, and also for forwarding our own publications in return to the several Institutions in America. Amongst the principal

donations may be recorded,—Cameron's Roman Baths, folio, presented by Mr. Rhodes; the Costume of the Clans, folio, presented by a Lady; Thornton's Illustrations of the Sexual System of Plants, folio, by Miss Roberts; King John of England, a History and Vindication of, by William Chadwick, by the Author; the Greenwich Observations for 1862, by the Lords of the Admiralty.

The Society has also added, by purchase, several Scientific Works, including 20 volumes of the Annals of Natural History; Owen's British Fossil Mammalia and Birds; Melville and Strickland on the Dodo; Forbes on the Naked-Eyed Medusæ; Ellis on Zoophytes; the Zoology of the Voyage of H.M.S. *Beagle;* Kenrick's Archæological and Historical Papers; Phillips's Mineralogy, by Brooke and Miller.

Since the last Annual Meeting the Council have endeavoured to make the Library more generally useful as a Reading-room, and a Committee was appointed to select a series of the principal Scientific Periodicals of the day to lay on the Library table for perusal. This regulation, involving as it does no small item of additional expense, will, it is hoped, be appreciated by the Members and Subscribers. The following periodical works are now constantly in the Library for reference :—

The Philosophical Transactions.
The Transactions of the Royal Society of Edinbro'.
The Proceedings of the American Philosophical Society.
The Proceedings of the Boston Natural History Society, U.S.
The Proceedings of the Academy of St. Louis, U.S.
The Proceedings of the Academy of Sciences of Philadelphia.
The Proceedings of the Historic Society of Lancashire and Cheshire.

The Proceedings of the Kilkenny Archæological Society.
The Proceedings of the Royal Dublin Society.
The Quarterly Journal of the Geological Society.
The Journal of the Dublin Geological Society.
The Geological Magazine.
The Proceedings of the Zoological Society of London.
The Annals of Natural History.
The Quarterly Journal of Microscopical Science.
The Journal of the Chemical Society.
The Journal of the Society of Arts.
The Quarterly Journal of Science.
The American Journal of Science and Art.
The Proceedings of the Geological Association.
The Canadian Journal of Industry, Science, and Art.
The Publications of the Palæontographical Society.
The Publications of the Ray Society.
The Anthropological Review.
The Smithsonian Contributions to Knowledge.
The Greenwich Observations.
Zeitschrift für Wissenchaftliche Zoologie.
Archiv für Naturgeschichte.
The Proceedings of the Liverpool Philosophical Society.
The Monthly Journal of the Royal Astronomical Society.
The Reader.
The Proceedings of the Liverpool Geological Society.
The Proceedings of the Manchester Geological Society.
The Proceedings of the Geological and Polytechnic Society of the West-Riding of Yorkshire.

LEEDS PHILOSOPHICAL AND LITERARY SOCIETY,

FROM JULY 1st, 1864, TO JUNE 30th, 1865.

RECEIPTS.

	£.	s.	d.
To Cash in Treasurer's hands	99	16	8
,, ,, General Curator's hands	16	3	4½
,, Subscriptions of 75 New Proprietary Members at 21*s.* each	78	15	0
,, ,, 31 Old Ordinary Members at 42*s.* each	65	2	0
,, ,, 90 New Ordinary Members at 21*s.* each	94	10	0
,, ,, 154 Old Annual Subscribers at 21*s.* each	161	14	0
,, ,, 23 New Annual Subscribers at 21*s.* each	24	3	0
,, ,, 162 Old Annual Subscribers at 5*s.* each	40	10	0
,, ,, 33 New Annual Subscribers at 5*s.* each	8	5	0
,, Arrears of Subscriptions	9	9	0
,, Receipts at Conversazione	22	0	0
,, Rent of Cellars	45	0	0
,, Rent of Geological Society	20	0	0
,, Rent of Lecture Room	45	7	0
,, Admissions to the Museum	175	1	2
,, Mr. Ludolf for Purchase of Insects...	5	0	0
,, Interest from Bankers	3	1	0
,, Discount from Gas Company	0	2	11
	£914	0	1½

DISBURSEMENTS.

	£.	s.	d.
By Building Fund	100	0	0
,, Insurance...	12	7	6
,, Gas and Coke	15	18	11
,, Coals	14	13	9½
,, Tradesmen's Bills	168	2	1½
,, Printing and Advertising	38	3	6
,, Books and Stationery	42	14	6
,, Subscription to the Ray Society	1	1	0
,, Subscription to the Society of Arts	2	2	0
,, Travelling Expenses of Lecturers	43	7	6
,, General Curator's Salary	160	0	0
,, Porter's Salary	31	4	0
,, Rates and Taxes...	3	9	10
,, Expenses of Conversazione	39	4	6
,, Postage and Postage Stamps	7	9	7
,, Purchase of Specimens	45	14	3
,, Preparation and Cleaning of ditto	22	8	1
,, Carriage of Packages, &c.	6	0	4
,, Cleaning of the Hall	8	5	2
,, Sundry Expenses	29	18	6
,, Purchase of Insects for Mr. Ludolf...	5	0	0
,, Bankers' Commission	1	10	0
,, Balance in Bankers' hands	94	17	9
,, Balance in General Curator's hands	20	7	3½
	£914	0	1½

DONATIONS AND ADDITIONS

TO THE

SOCIETY'S MUSEUM.

Those marked thus (*) are Honorary Members; thus (†) Members of the Society.

GEOLOGY AND MINERALOGY.

Fine Frontal Bone and Horn Cores of Bos Primigenius, found at Ardwick-le-Street, in Doncaster	†Mr. John Holmes.
Specimens of Garnets, from South Africa	Mr. J. N. Brigg.
Specimens of Halonia and Knorria, from Park Spring Quarry	Mr. Denton, Harehills.
Specimens of a Fucoid Plant, from the Rag Stone at Burley Quarry, and Magnesian Limestone, from Garforth	†Mr. J. C. Dolan.
Fossils, from the Valley of the Tombs of the Kings at Thebis.....	†Mr. Edward Atkinson.
Specimens of Granite, from Assouan, Egypt	†Mr. G. Morley.
Horns and Bones of the Goat and Short-horned Ox; Jaws of the Boar, from the Drift, in the town of Richmond, Yorkshire	Mr. Edward Wood, F.G.S., Richmond.
Specimen of Mount Sorrel Granite.....	†Mr. E. Filliter.
132 Specimens of Volcanic Rocks, from the Lipari Islands, Mount Etna, and Sicily; Silicified Wood, from Cairo; a series of 82 Fossils, from the Gault at Folkstone; Cast of Diceras; Fossil Asterias, from the Libyan Desert; very fine specimens of Cyatho-crinites, Goniodactylus, Actino-crinites Moniliformis, Calymene Blumenbachii, and other Fossils, from Dudley	†Mr. G. Morley.

Rock Specimens, from the Isle of Skye...	†Mr. Edward Atkinson.
Periechocrinus, Moniliformis, and a fine Specimen of Pterogotus, from the Ludlow Rock	Purchased by the Society.
A large Slab of Breccia, from the Caves of Dordogne, Les Eyzies, with Flint Implements, Chippings; Bones and Teeth of the Rein Deer, Ox, and Horse, and Lance Heads made from Bones of the Rein Deer	Mr. Henry Christy, F.G.S., London, and Mons. Lartet, of Paris.
Very fine Specimen of Sternbergia Transversa; Fossil Wood, from the Submarine Forest at Sheppy, bored by the Teredo navalis; and Fossil Wood, from the Isle of Portland	Rev. Mr. Fawcett, Kildwick.
Plumbago, Granular Garnets, from Cape Comorin; Soapstone, and Boulder of Trap Rock, from the Orange River ...	†Colonel Francis.
Shells of Helix Nemoralis, from the Sand Hills of Gorteen, county of Galway; and Sand containing Foraminifera, from Connemara	Mr. John Morkill.

ZOOLOGY.

Specimen of Paradisea Apoda, Emerald Bird of Paradise	Miss Roberts.
3 Specimens of Trigonia Pectinata.....	Dr. Percival Wright, Dublin.
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Skull of the Manatee; Cranium of an Aboriginal Indian, from a cavern in the Pedro Cliffs, St. Elizabeth, West Indies; Snout of the Saw Fish, Frog Fish, Star Fish; two Parroquets; Shells and Corals; Egg of Nyctibus, &c.	*The Hon. Richard Hill, Spanish Town, Jamaica.
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Fine Specimens of the Australian Jabiru and Channel Bill	Obtained by Exchange with the Warwick Museum.
8 Species of British Land Shells and Seeds of the Burdock	Mr. Blackburn.

MISCELLANEOUS.

Mummy of a Crocodile, 6 feet in length, and several smaller Specimens, from the Catacombs near Manfalout, Upper Egypt	†Mr. G. Morley.
An Ancient Sword, found in the Highlands	†Mr. J. O. March.

10 Flint Implements; several flint Chippings found in the fields on the Hambleton Hills; 2 Urns, and fragments of others; Jet Beads; portion of a Comb, and Human Bones, found in Tumuli on Esketh Moor	†Mr. James Fox.
Skull of a Romano-Briton, from a Tumulus on Hawnby Moor	Mrs. Hamer, Hawnby, near Helmsley.
A Bronze Idol, taken from a Jos House, in the city of Soochow	Mr. Wignall, Shanghæ.
3 Greco-Egyptian Terra-Cotta Lamps; Greco-Egyptian Terra-Cotta Figures; Brick made with Straw, from the Brick Pyramid at Dashour; Bitumen, taken from Mummy Coffins; Brick, with the Impression of a Royal Signet, from Thebes; 34 Porcelain Sepulchral Figures and Necklaces, and several Wooden Sepulchral Figures; 5 Heads of Mummies; Panel of Wood, with Egyptian Painting, and a Lid of the Coffin of a Mummy Child	†Mr. G. Morley.
An Ancient Cross Bow	†Mr. F. Ferns.
13 Roman Coins, including a second Brass of Domitian, found at Aldborough	Mr. T. N. Warwick, Boroughbridge.
A very large Burmese Umbrella, from Araccan	Mr. Francis Motley.
Very fine Mummy of a Crocodile, from Medinet Abou, Egypt	Captain Blake, Skipton.
Mass of Berry Pemmican, from British North America	Dr. Rae, R.N.
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Gauntlet's Patent Chronometrical Thermometer	†Mr. Arthur Marshall.
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Bound Copy of Thornton's Illustrations of the Sexual System of Linnæus, elephant folio	Miss Roberts.
Journal of the Royal Institution of Cornwall, with the Forty-Sixth Annual Report, No. 11, 1864	The Royal Institution of Cornwall.
Notes on Scientific History, by John Tindall, F.R.S.....	The Author.
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Smithsonian Contribution to Knowledge, vol. xiv.; Smithsonian Miscellaneous Collections, vol. v.; Annual Report of the Regents for 1862	The Smithsonian Institution, Washington.
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The Boston Journal of Natural History, vol. vii., No. 4; Proceedings of the Boston Society of Natural History, vol. ix., Parts 12 to 20.....	The Boston Natural History Society.
Report of the Superintendent of the U.S. Coast Survey for 1861, 4to.	The American Government.
Annual Report of the Trustees of the Museum of Comparative Zoology at Boston, U.S., for 1863.....	The Trustees.
Bulletin of the Museum of Comparative Zoology, Cambridge, Massachusetts ...	The Trustees.

Catalogus Universatis Harvardianæ, 1863; an Address delivered before the Alumni of Harvard College, 1863, by James Walker, D.D.; Addresses at the Inauguration of Thomas Hill, D.D., as President of Havard College, March 4th, 1864; and other Printed Documents...	Presented by the Corporation of Harvard College Library.
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History and Antiquities of Scarborough, by Thomas Hinderwell, 8vo.	†Dr. Heaton.
Journal of the Dublin Geological Society, vol. x., part 2	The Dublin Geological Society.
The Greenwich Observations for 1862, 4to.	The Lords Commissioners of the Admiralty.
Memoirs of the Astronomical Society, vol. xxxii., part 2	The Astronomical Society, by Professor Airey.
Proceedings of the Kilkenny Archæological Society	The Archæological Society of Kilkenny.

Journal of the Proceedings of the Royal Institute of Great Britain	The Royal Institution.
Transactions of the Royal Academy of Sciences of Stockholm, for 1863.....	The Academy of Sciences at Stockholm.
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The Anthropological Review, Nos. 4, 5, 6, 7, 8	The Anthropological Society of London.
Transactions of the Royal Society of Edinburgh, vol. xxii., part 3; Proceedings of Ditto for 1863 and 1864	The Royal Society of Edinburgh.
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Caverns du Perigord; Objects Graves et Sculptes, du Temps Pre-Historiques, dans l' Europe Occidental, par MM. Edw. Lartet et H. Christy. Paris, 1864.	The Authors.
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FORTY-SIXTH REPORT

OF

THE COUNCIL

OF THE

LEEDS

PHILOSOPHICAL AND LITERARY SOCIETY,

AT THE CLOSE OF THE SESSION

1865–66.

Read at the Annual Meeting, May 1st, 1866.

LEEDS:
PRINTED BY SAMUEL MOXON, QUEEN'S COURT, BRIGGATE.

MDCCCLXVI.

IMPORTANT RULE

RESPECTING THE PROPERTY OF THE SOCIETY,

PASSED OCTOBER 8TH, 1860.

That in the event of a dissolution of this Society, its Property and Effects, whether real or personal, shall not be disposed of for the personal benefit of the Members, but shall be appropriated in such manner for the advancement of Science, Literature, or Art, in the town of Leeds, as shall be determined by a Majority of the Members at an extraordinary Meeting to be convened for that purpose. But that no dissolution of the Society shall take place without the consent, in writing, of a majority holding not less than two-thirds of the Proprietary Shares.

FORM OF A BEQUEST TO THE SOCIETY.

Every person desirous of bequeathing to the Society any Sum of Money, Specimens, Books, Instruments, or other Property, is requested to make use of the following Form :—

I give and bequeath to the Trustees for the time being of the Society established at Leeds, called "THE LEEDS PHILOSOPHICAL AND LITERARY SOCIETY," *for the use of the said Society, the sum of , to be paid out of such part of my personal Estate as I may legally charge therewith.* [Or here enumerate the Effects or Property intended to be bequeathed.] *And I direct that the Receipt of the Treasurer of the said Society, for the time being, shall be an effectual discharge to my Executors for the said Legacy.*

REPORT OF THE COUNCIL

AT THE CLOSE OF THE

FORTY-SIXTH SESSION.

The Council, in retiring from office, have pleasure in being able to congratulate the Society on its continued prosperity and success. Though 52 Members and Subscribers have been lost by death or resignation during the past year, yet an equal number of new Members and Subscribers has been elected in their place, so that there has been no reduction in the number or funds of the Society.

The Accounts, a statement of which is appended to this Report, show that the funds of the Society are in a satisfactory state. It will be seen on examining them, that the debt on the Building Fund has been reduced by fresh Contributions, by the sale of new Ordinary Members' Tickets, and by a transfer from the Ordinary Account, to less than £100. It may therefore be confidently hoped that at the close of the next Session, the new Council will have it in their power to report that the Building is entirely free from debt; that the whole of the Sum of £11,515 13s. 11d., required for the recent alterations and extensions of the Museum has, by the public spirit of their townsmen, and the steady friends of the Institution been raised, and that the Society is thus in

posssesion, free of all incumbrance, of a Building alike honourable to the town, and inferior to that of no provincial Institution of the kind. It will also appear on examining the Ordinary Account that, after providing two new table cases for the Museum, there will be a balance in favour of the Society of about £128.

The Receipts for the admission of the public to the Museum are not so large as in former years; but this is a source of revenue which may always be expected to fluctuate. It is satisfactory to find that a large number of persons find pleasure in viewing the collections of the Society; and it may be hoped that of the many who avail themselves of the opportunity of visiting the Museum, not a few go away with minds improved by what they see.

Some doubts having been expressed as to the security of some portion of the Building, the Council considered it their duty to take such steps as would effectually allay all anxiety on this head, and they accordingly requested Mr. J. W. Leather, C. E., to examine the Building and report fully upon its condition, particularly directing his attention to those points about which mistrust prevailed; and they are happy to find that in his opinion there is no ground for the apprehensions that were entertained.

The following list of the Papers which have been read before the Society during the past Session, will bear comparison in both Scientific and Literary interest with those of any previous year.

1.—"On Greek Fictile Vases." By Rev. Churchill Babington, B.D., F.L.S., &c., Fellow of St. John's College, and Disney Professor of Archæology, in the University of Cambridge. Read Oct. 24th, 1865.

2.—"Some Account of the New World Isthmus," with Specimens and Illustrations. By Captain Pim, R.N., &c. Read Nov. 7th, 1865.

3.—"On the Stone Implements of Antiquity, with especial reference to those from the Drift." By John Evans, F.R.S., F.G.S., F.S.A., &c. Read Nov. 21st, 1865.

4.—"The Runic Inscriptions of Great Britain; their Relations to History, Poetry, and Romance." By Edward Charlton, M.D., of Newcastle. Read December 12th, 1865.

5.—The Conversazione. Held December 19th, 1865.

6.—"On the Distribution of Species." By Professor Rolleston, F.R.S., &c., of Oxford. Read January 9th, 1866.

7.—"On the Application of Animal Materials to the wants of Man." First Lecture by Professor T. C. Archer, F.R.S.E., Director of the Industrial Museum of Scotland. Read Jan. 23rd, 1866.

8.—Second Lecture by Professor Archer. Read January 25th, 1866.

9.—"Oxford in the Olden Time." By Rev. J. T. B. Landon, M.A. Read February 6th, 1866.

10.—"Recent Discoveries on the Refraction of Light." By J. H. Gladstone, Ph.D., F.R.S. Read February 20th, 1866.

11.—"The Physics of the Sun." By Professor Robert Hunt, F.R.S. Read March 6th, 1866.

12.—"On some of the most dangerous moments of my disguise." By Arminius Vámbéry, Professor of Oriental Languages in the University of Pesth. Read March 16th, 1866.

13.—"On the Cultivation of Oysters and Salmon by Natural and Artificial Means." By Frank Buckland, F.L.S., &c. Read March 20th, 1866.

14.—"On the Physical Geography of Yorkshire." By Professor Phillips, M.A., LL.D., F.R.S., of Oxford. Read April 3rd, 1866.

15.—"On the Atmosphere, its Chemistry." By Thomas Fairley, F.C.S., Lecturer on Chemistry, Leeds School of Medicine. Read April 17th, 1866.

The Conversazione was held on the 19th December, when a larger number of Members attended than on any former occasion. The principal objects of interest that were exhibited were an extensive series of Water Colour Sketches of the Yorkshire Coast, from Patrington to Flamborough, by Mr. Sutcliffe; numerous Photographs of great beauty, by local and foreign artists; specimens of the new process called Graphotype, by Messrs. Roper, of London; Enamelled Mosaics, copied from St. Mark's, at Venice, by Dr. Salviati; Carrés Ice producing Machinery, by Dr. Crace Calvert. Mr. H. Clifton Sorby, F.R.S., exhibited and explained his direct vision Spectroscope and its application in the detection of stains of blood. There were also exhibited Illustrations of the Polarization of Light, by Mr. Milner, of Wakefield; a large Spectroscope, and Vibratory Rods, &c., by Mr. Waterhouse, F.R.S., President of the Philosophical Society of Halifax; and by Messrs. Chadburn, their Apparatus for Viewing Opaque Objects.

During the past year four of the Honorary Members of the Society have been removed by death,—Lord Monteagle, Professor Walker of Oxford, Dr. Whewell, Master of Trinity College, Cambridge; and Mr. Charles Waterton, of Walton Hall.

On a former occasion, when alluding to the death of Mr. William Gott, the Council expressed a hope that it might have some memorial of one who had been so constant and munificent a contributor to its collections. They have now the satisfaction of announcing the presentation by the Rev. John Gott, Vicar of Bramley, of a beautiful marble bust of his late father, executed expressly for the Society, by Adams, of Rome. Placed together with the busts of the Founders of the Society at

the entrance of the Museum, it forms an appropriate introduction to the collections to which they so largely contributed.

The Museum has also been enriched by the collection of the late Mrs. Hobson, of Carlton, near Pontefract, presented by her nephew, Edward Armitage, Esq., A.R.A., of London, at the suggestion of her brother, the Rev. J. Armitage Rhodes. It comprises a most extensive series of British and Foreign Shells, Corals, Sponges, Minerals and Volcanic products from Vesuvius; amongst which are some magnificent specimens of Quartz, Amethyst, Carbonates and Muriates of Lead, Carbonates and Phosphates of Copper, Carbonates of Lime, Specular Iron Ore, &c. &c.

The Museum has also been made the fitting depositary of another important collection of Geological and Mineralogical Specimens, from various parts of the kingdom, as well as from the coal measures of Yorkshire, together with Philosophical Apparatus, the property of the late Christopher Dawson, Esq., of Royds Hall, which have been presented by his representatives, at the suggestion of Edward Hailstone, Esq., F.S.A., of Horton Hall. An additional interest attaches to the Scientific Apparatus, from the fact that some of it was constructed and used by the late Dr. Priestley and Mr. Dawson in their joint experiments.

The other additions of importance to the Geological and Zoological Departments are a fine head and horns of the gigantic Irish Deer, presented by Colonel Gascoigne, of Parlington Park; 32 bottles of Reptiles, in spirits, from Demerara, and a specimen of Merian's Opossum from Surinam, by Dr. Armitage; a fine Emerald Bird of Paradise, by Dr. O'Callaghan, of Leamington; and a

mature male Emu, by Mr. Joseph Holt. The Council have been fortunate enough to secure one of the sets of bones belonging to that remarkable extinct bird the Dodo, which had been sent to London from the Mauritius for sale. They likewise availed themselves of an opportunity of securing a very beautiful prepared skeleton of that rare bird the Cassowary, and thus enriching the Museum with a complete Osteological series of all the species of Struthionidæ except the Apteryx and the Moa, which deficiencies they hope will be supplied by those of their Members who may have connections residing in New Zealand.

For the purpose of furthering the study of certain Invertebrate tribes, which, from their minuteness, cannot be examined with the unaided eye, and the beauty of whose structure is imperfectly exhibited in spirits, the Council have obtained from Prague accurate magnified models in plaster of some of the Foraminifera, and a beautiful series of models in glass, shewing the natural size and colour of the European Actineæ. It is a sufficient evidence of the faithfulness and value of these models, that a similar series has been ordered for the British Museum.

It has long been a source of regret that the Society did not possess a Microscope among its Philosophical Apparatus; but this deficiency has been supplied by the liberality of S. J. Brown, Esq., who has presented one of the recent Binocular Microscopes of Dr. Harley.

The Archæological Department, which has long been the most deficient in the Museum, has received considerable accessions during the past year, including specimens of the worked Flints from Pressigny le Grand, presented by John Evans, Esq., and H. Christy, Esq.; and three very fine Flint Spear Heads from Ireland, presented by

Henry Oxley, Esq., Mayor of Leeds, and an extensive series of three hundred Flint Arrow and Spear Heads, Sling Stones, Celts, and various Implements from the neighbourhood of Bridlington, purchased for the Society by the contributions of several of its Members. The collection of Coins has been increased by a donation from the Chancellor of the Duchy of Lancaster of twenty Silver Coins of Henry 2nd and 3rd, John, and William "The Lion" of Scotland.

A part of the well-known Collection of Antiquities formed with so much care during a series of years by Mr. Wardell, has been purchased and presented to the Museum by several Members, whose names will be found in the list of Donations. It contains specimens of Roman and Etruscan Vases, Cups, Tazzas, Pateras and Lamps, Egyptian Sepulcral figures in Porcelain and Wood, Roman and Saxon Urns, Stone Hammers, Celts and Adzes, Flint Arrow Heads, and Roman Fibulæ and Coins. The interest of these last is much enhanced by their being found in Yorkshire, and by the places and circumstances of their exhumation being known.

The Council regret that they are able to report so few additions during the last Session to the Industrial Museum. The principal acquisitions have been a complete series illustrative of the Manufacture of Silk, by Messrs. Holdforth, and a Collection of 26 preparations exhibiting the destructive distillation of Wood, by Messrs. Warburton and Sons, and beautiful series of Models of Fungi.

The additions to the Library during the year have been highly satisfactory, embracing, besides the Reports and Publications of the principal Scientific Institutions in the kingdom and foreign countries, some works of importance, as for instance:—

Essays on the Roman Invasion of Britain. By Professor Airey.

Antiquitates Celtiques, and other Archæological Works. From Mons. Boucher de Perthes, of Abbeville.

The Coins of the Ancient Britons. By John Evans, Esq., F.R.S.

Astronomical Observations at Leyton, in Essex. By J. Barclay Gurney, Esq.

History, Condition, and Prospects of the Indian Tribes of the United States. Vol. 5. The American Government.

44 Vols. and Memoirs on Geology and Mining Operations of Great Britain. Sir R. Impey Murchison, Director-General of the Geological Survey.

The Publications of the Smithsonian Institution, and various Works connected with the American Government. The Smithsonian Institution, Washington.

The Transactions of the Royal Society of Edinburgh; the Philosophical Society of Philadelphia; the Boston Natural History Society; the Academy of Sciences of Philadelphia; the Academies of Turin, Stockholm and Christiana. Presented by those Societies.

A Catalogue of the Books, which must have involved no small labour on the part of the Honorary Librarian, Dr. Heaton, has just been printed. The Council, believing that the Members will be glad to possess a record of the contents of the Library, have decided that it shall be sold to the Members at the cost price, (6d.)

It is a matter of some regret that, while the General Collection in the Museum will, in most departments, bear a comparison with, and in some is superior to all other Provincial Institutions, its specimens illustrative of the Natural History of the District are not more extensive and complete. Those of the Yorkshire Coal field for instance, although fine examples of the *well known species* occurring in the neighbourhood, might doubtless be enriched by new forms and genera, if a careful examination of the different beds in our Coal Formation were carried out by those Members of the Society whose opportunities facilitate such investigation. It is well known that the several beds of the Yorkshire Coal field

do not all contain the same fossil plants, and it would add materially to our knowledge if a correct register of the species characteristic of each deposit were carefully prepared; and although space could not probably be found to illustrate the different beds by individual specimens of their fossil contents arranged separately, such knowledge would be of great value. Members of the Society also, not specially interested in such matters, may largely aid by presenting to the Museum such specimens as fall in their way, or as they might easily procure with slight trouble, examples of the living or fossil Fauna and Flora of the County. As regards the Geological department, the Society naturally look for much aid to the Geological and Polytechnic Society of the West-Riding, whose Collection of Coal Plants adds so materially to our illustration of the Carboniferus series.

From the Meteorological Register, kept at the Hall, the following Abstract is derived to show the Monthly averages for the past year :—

1865.	Mean Temperature.	Mean Height of Barometer.	Total Amount of Rain in Inches.
January	36	29.224	0.135
February	35	29.551	0.185
March	37	29.600	0.095
April	50	29.780	0.510
May	54	29.550	1.305
June	60	29.880	0.610
July	63	29.598	1.780
August	59	29.521	3.140
September	60	29.880	0.150
October	49	29.321	3.900
November	43	29.590	2.535
December	42	29.813	0.865

The greatest degree of heat, as indicated by the Thermometer in the Sun was 100 on the 22nd of July ; greatest in the shade 87, on the 24th July, and minimun 19° on the 15th February.

The greatest Barometric pressure was on the 11th of December, being 30.500, the temperature of the Mercury being 59° ; the least pressure was on the 14th of January, being 28.150, temperature of Mercury, 52°

The greatest fall of Rain was on the 9th of October, being 1.600.

LEEDS PHILOSOPHICAL AND LITERARY SOCIETY,

FROM JULY 1st, 1865, TO JUNE 30th, 1866.

RECEIPTS.

	£	s.	d.
To Balance in Bankers' hands	94	17	9
,, ,, Curator's hands	20	7	3½
,, Subscriptions of 79 New Proprietary Members at 21s. each	82	19	0
,, ,, 30 Old Ordinary Members at 42s. each	63	0	0
,, ,, 85 New Ordinary Members at 21s. each	89	5	0
,, ,, 152 Old Annual Subscribers at 21s. each	159	12	0
,, ,, 26 New Subscribers at 21s. each	27	6	0
,, ,, 152 Old Annual Subscribers at 5s. each	38	0	0
,, ,, 26 New Annual Subscribers at 5s. each	6	10	0
,, Arrears of Subscriptions	4	4	0
,, Rent of Cellars	50	0	0
,, Rent from Geological and Polytechnic Societies	20	0	0
,, Rent of Lecture Room	79	19	0
,, Receipts at Conversazione	21	15	0
,, Receipts at Museum	140	3	2
,, Sale of Old Flax	2	0	0
,, Two Catalogues of Library	0	1	0
,, Received for Carriage of Mr. Gott's Bust	6	8	6
,, Interest from Bankers	7	14	0
	£914	1	8½

DISBURSEMENTS.

	£	s.	d.
By Building Fund	100	0	0
,, Insurance	9	0	0
,, Gas and Coke	11	7	1
,, Coals	10	6	7
,, Tradesmen's Bills	77	1	1½
,, Printing and Advertising	34	11	0
,, Books, Stationery, and Binding	25	15	8
,, Rates and Taxes	8	5	8
,, Postages and Receipt Stamps	7	15	4
,, Expenses of Conversazione	40	18	11
,, Purchase of Specimens	37	0	9
,, Carriage of Parcels and Specimens	9	7	0
,, Preparation of Specimens	16	18	9
,, Travelling Expenses of Lecturers	70	4	0
,, Subscription to the Ray Society—2 years	2	2	0
,, Subscription to the Society of Arts	2	2	0
,, General Curator's Salary	193	6	8
,, Porter	31	16	0
,, Two New Table Cases for Museum	45	6	0
,, Cleaning the Hall	8	13	5
,, Mr. Leather's Report	6	6	0
,, Sundry Expenses	34	12	8½
,, Carriage of Mr. Gott's Bust from Rome	6	8	6
,, Bankers' Commission	1	9	0
,, Balance in Bankers' hands	103	19	3
,, Balance in Curator's hands	24	13	6½
	£914	1	8½

DONATIONS AND ADDITIONS

TO THE

SOCIETY'S MUSEUM.

Those marked thus (*) are Honorary Members; thus (†) Members of the Society.

GEOLOGY AND MINERALOGY.

An extensive and valuable Collection of Volcanic Rocks from Vesuvius; magnificent Specimens of Quartz, Amethyst, Carbonates and Muriates of Lead, Carbonates and Phosphates of Copper, Carbonate of Lime, Specular Iron Ore, Carbonate of Barytes, Flour Sparr, Opal, Jasper, Chalcedony, Agates, Native Copper Blende, &c.	Edward Armitage, Esq., A.R.A., London.
Fine Specimen of Fossil Shell, from the Ironstone of Middlesborough	†Mr. J. Holmes.
A valuable Cabinet of Minerals; a Series of Plants from the Yorkshire Coalfield; and an extensive collection of Minerals and Fossils from various parts of the United Kingdom.	The Family of the late Christopher Holdsworth Dawson and Joseph Dawson, Esqrs., of Royds Hall.
A very fine Skull and Horns of the Gigantic Irish Deer (Megaceros, Hibernicus)	†Lieut.-Col. Gascoigne, Parlington Park.
Fine Specimen of Stigmaria Ficoides, from Baildon Moor	Mr. H. Laycock.
Fine Mass of an undescribed plant (apparently Fucoid?) from the Flagstone at Bramley Fall, near Leeds	†Mr. J. C. Dolan.
Several Specimens of Trilobites, Asaphus, from Coalbrook Dale	†Mr. Wm. Smeeton.
Calamites Cannæformis from Rumbolds Moor	†Mr. B. Clayton.
A series of 100 enlarged Models of the principal Generic Forms of Foraminifera, by Wenzel Fric, of Prague	Purchased by the Society.
A small series of Bones of the Dodo, from the Mauritius	Purchased by the Society.

ZOOLOGY.

Fine Specimens of the Badger and Fox	Mr. Leigh.
A mature Male Specimen of the Emu	†Mr. Joseph Holt.
32 Bottles of Reptiles from Demerara; and a beautiful Specimen of Merian's Opposum, from Surinam	Dr. Armitage.
Very fine Stuffed Specimen of the Emerald Bird of Paradise	*Dr. O'Callaghan, D.C.L., F.S.A.
Specimens of the Flying Lizard, from Malabar; three Molar Teeth of the Elephant; a large and valuable Collection of Shells, Corals, and Sponges, formerly belonging to the late Mrs. Hobson, of Carlton, near Pontefract	Edward Armitage, Esq., A.R.S., London.
Specimen of the Egyptian Turtle Dove, and the New British Snake (Coronella lævis), and Natter Jack	†Col. Child.
Specimen of the Frog-fish or Angler	†Major Smith.
Portion of the Solid Stem of an Elm Tree, containing the Nest and Eggs of the long-tailed Titmouse	†Mr. R. J. Hudson.
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MISCELLANEOUS.

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A valuable Series of near 300 Flint and Stone Implements, found in the neighbourhood of Bridlington.....	Presented by the following Members of the Society: †J. G. Marshall, Ar. Marshall, R. B. Turner, J. D. Luccock, Francis Lupton, F.W. Titley, J. W. Armitage, Esqrs.
Three very fine Flint Spear Heads, from Ireland	His Worship the Mayor of Leeds, †Henry Oxley, Esq.
A Series of Nutmegs with the Arillus or Mace still adherent.....	Mr. Bland.
Eighteen Short Cross Pennies of Henry 2nd, Henry 3rd, one of King John, and one of William, the Lion of Scotland, found at Eccles.	The Chancellor of the Duchy of Lancaster.
Various Chemical and Philosophical Instruments, some made and used by Dr. Priestley; two Globes, and Smith's Geological Map of the British Isles, mounted and in a case.....	The Family of the late Christopher Holdsworth Dawson and Joseph Dawson, Esqrs., of Royds Hall.
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A Series of 72 Models of Fungi	Purchased by the Society.

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Memoires de la Societe Imperale d'Emulation d'Abbeville, for 1861-2-3-4-5; De la Machoire Humaine, de Moulin Quignon; Nouvelles Decouvertes en 1863 et 1864, par M. Boucher de Perthes; De l' Homme Antedeluvian et de ses Œuvres, par M. Boucher de Perthes; De la Femme dans l'etat social de son Travail et de sa Remuneration, par M. Boucher de Perthes; Discours pononce a la Société Impérial d' émulation d'Abbeville dans la Seance, du 3 Nov., 1839.....	*M. Boucher de Perthes, Abbeville.
Proceedings of the Zoological Society of London for 1864	The Zoological Society of London.
Proceedings of the Geological Association for 1864-5	The Geological Association, London.
Essays on the Roman Invasion of Britain, 4to., privately printed.....	Professor Airey, F.R.S., the author.
Report of the British Association for the Advancement of Science, for 1864	The British Association.
Catalogue of the American Philosophical Society, part 1	The American Philosophical Society.
A view of the History and Coinage of the Parthians, by John Lindsay, Esq., 4to.; Notice of remarkable Mediæval Coins, by John Lindsay, Esq., 4to; some Account of an Ancient Talisman from Syria, by John Lindsay, Esq., 4to.....	*Mr. H. Denny.
An Inaugural Lecture on the Study of Archæology, by Churchill Babington, M.A., F.L.S., Disney Professor of Archæology in the University of Cambridge	The Author.
The Boston Journal of Natural History, vol. vi., parts 1, 2, 3; Proceedings of the Boston Society of Natural History, vol. ix., part 2	The Boston Society of Natural History, U.S.
Statistics of the Foreign and Domestic Commerce of the United States, 1863.....	The Secretary of the Treasury of the United States.
Monograph on the Bats of North America, by H. Allen, M.D.; Annual Report of the Board of Regents of the Smithsonian Institution, 1863; Smithsonian Contributions to Knowledge, vol. xiv., 4to.....	The Smithsonian Institution, Washington.
Results of Meteorological Observations made under the direction of the Smithsonian Institution, from the year 1854 to 1859 inclusive, vol. 2, part 1, 4to	The Smithsonian Institution, Washington.

Proceedings of the American Philosophical Society, vol. ix., parts 71 and 72, 8vo.; List of Members, &c., of ditto	The American Philosophical Society.
Annual Report of the Trustees of the Museum of Comparative Zoology at Harvard College, Cambridge, U.S., 1864	The Trustees of Harvard College, Cambridge.
Transactions of the Wisconsin State Agricultural Society, vols. v. and vi. for 1858, 1859, and 1860, 2 vols. 8vo	The Wisconsin State Agricultural Society, Madison, U.S.
The Coins of the Ancient Britons, arranged and described by John Evans, F.R.S., F.G.S., with 24 plates, 1864	The Author.
Antiquités, Celtiques et Antediluviennes par M. Bouchier de Perthes, tome 3, royal 8vo.	The Author.
Caverns du Perigord objets Graves et Stulptes des Temps Pre-Historiques dans l' Europe occidentale, par M. M. Ed. Lartet et H. Christy	The Authors.
Journal of the Royal Institution of Cornwall for 1865	The Royal Institution of Cornwall.
Record of Zoology, 8vo	Purchased by the Society.
On the Flint Implements and Tumuli of the neighbourhood of Wath, near Ripon, by the Rev. W. C. Lukis, F.G.S.	The Author.
Memoirs of the Royal Astronomical Society, vol. xxxiii., 1863-64	The Royal Astronomical Society.
The Harvean Oration for 1865, by H. W. Ackland, M.D., Oxon.....	The Author.
Astronomical Observations taken during the years 1863-64, at the Private Observatory of Josiah Barclay Gurney, Esq., F.R.A.S., at Lepton, Essex.....	J. Barclay Gurney, Esq.
Annual Report of the Halifax Literary and Philosophical Society for 1864	The Halifax Literary and Philosophical Society.
Proceedings of the Natural History Society of Northumberland, Durham, and Newcastle-upon-Tyne, vol. i, part 1	The Natural History Society.
Transactions of the Huddersfield Archæological and Topographical Society, vol. 1, part 1.....	Mr. Fearless Barber, Brighouse.
Proceedings of the Academy of Sciences of Philadelphia, for 1865	The Academy of Sciences, Philadelphia.
Proceedings of the Berwickshire Naturalists Club, vol. v., parts 2 and 3.....	The Berwickshire Naturalists Club.
United States Coast Survey, for 1862, 4to ...	The American Government, through Professor Bache.

Experiments to determine the Properties of some Mixtures of Cast Iron and Nickel, by William Fairbairn, F.R.S.; On Tubular Girder Bridges, by William Fairbairn, F.R.S.; The Machinery Department of the Great Exhibition, by William Fairbairn, F.R.S.; Useful Information for Engineers, by William Fairbairn, F.R.S.; Description of the Floating Steam Corn Mill and Bakery, by William Fairbairn, F.R.S.; Experiments to determine the effect of Impact Vibratory Action, &c., on Wrought Iron Girders, by William Fairbairn, F.R.S.	The Author.
Reports of the Royal Society of Tasmania, for 1851-2, 1860-61-64; Monthly Notice of Papers and Proceedings of the Royal Society of Tasmania, for 1863	The Royal Society of Tasmania, by Dr. Milligan.
Diplomatic Correspondence—Papers relating to Foreign Affairs accompanying the Annual Message of the President to the Second Session of the 38th Congress, for 1863-64, 6 vols. 8vo	W. L. Raymond, Esq., Consul for the United States.
Catalogue of Antiquities in the Museum of the Society of Antiquaries of Scotland ...	The Directors of the Museum.
History, Condition, and Prospects of the Indian Tribes of the United States, by H. R. Schoolcraft, L.L.D., vol. 6, 4to.	Presented by the Commissioners for Indian Affairs, United States.
The Short Cross Question, by John Evans, Esq., F.R.S.	The Author.
The Art Directory for 1865; Calendar for 1866	The Science and Art Department, South Kensington.
The Gate of the Pacific, by Commander Bedford Pim, R.N., 8vo	The Author.
Report of the Geological and Polytechnic Society for the West Riding of Yorkshire, for 1864-65	The Geological and Polytechnic Society.
Forty-four volumes and parts, of the Memoirs of Geological Survey of Great Britain; and Catalogues of Mining Records, &c. ...	Sir R. J. Murchison, F.R.S., Director General of the Ordnance Survey.
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FORTY-SEVENTH REPORT

OF

THE COUNCIL

OF THE

LEEDS

PHILOSOPHICAL AND LITERARY

SOCIETY,

AT THE CLOSE OF THE SESSION

1866–67.

Read at the Annual Meeting, May 2nd, 1867.

LEEDS:
PRINTED BY EDWARD BAINES AND SONS.

MDCCCLXVII.

IMPORTANT RULE

RESPECTING THE PROPERTY OF THE SOCIETY,

PASSED OCTOBER 8TH, 1860.

That in the event of a dissolution of this Society, its Property and Effects, whether real or personal, shall not be disposed of for the personal benefit of the Members, but shall be appropriated in such manner for the advancement of Science, Literature, or Art, in the town of Leeds, as shall be determined by a majority of the Members at an extraordinary Meeting to be convened for that purpose. But that no dissolution of the Society shall take place without the consent, in writing, of a majority holding not less than two-thirds of the Proprietary Shares.

FORM OF A BEQUEST TO THE SOCIETY.

Every person desirous of bequeathing to the Society any Sum of Money, Specimens, Books, Instruments, or other Property, is requested to make use of the following Form :—

I give and bequeath to the Trustees for the time being of the Society established at Leeds, called "THE LEEDS PHILOSOPHICAL AND LITERARY SOCIETY," *for the use of the said Society, the sum of* , *to be paid out of such part of my personal Estate as I may legally charge therewith.* [Or here enumerate the Effects or Property intended to be bequeathed.] *And I direct that the Receipt of the Treasurer of the said Society, for the time being, shall be an effectual discharge to my Executors for the said Legacy.*

REPORT OF THE COUNCIL

AT THE CLOSE OF THE

FORTY-SEVENTH SESSION.

THE Council are happy in being able to report a considerable addition to the numbers of the Society: 56 new Members and Subscribers having joined its ranks during the year, while only 33 have been lost by death or resignation. The Society at present consists of 272 Proprietary and Ordinary Members; and 374 Subscribers: total, 646. These numbers, however, though large when compared with former years, are still less than might be expected in a town of the size and wealth of Leeds, and it is believed they might be much increased if the present Members would undertake an active canvass amongst their friends and neighbours, and so place in the hands of the Society the means of greatly extending its usefulness.

The statement of the Accounts, which accompanies this Report, shows that the funds of the Society are in a satisfactory condition. The remaining portion of the debt on the Building Account, amounting to £102 14*s.* 3*d.*, has now been paid, and in future the whole income may be appropriated to the current wants of the Institution. After devoting a larger sum than formerly to the purchase of books, and providing

additional cases for the Museum and Library, there still remains a balance in the hands of the Treasurer. The Council have pleasure in acknowledging the handsome donation of £10 from Thomas Emsley, Esq., of Burley, near Otley.

There is again a deficiency in the amount received for admissions to the Museum, the numbers during the past year having been only 31,859. As this is now an important part of the income of the Society, the Council recommend to their successors to consider whether some plan could not be adopted for increasing the attractiveness of the Museum and extending its usefulness.

The Papers which have been read during the Session have attracted considerable audiences, and have been in no way inferior in interest to those of preceding years, as will be evident from the following list :—

1. "A Correct Estimate of Facts the real Basis of Science." By Charles Chadwick, M.D., President of the Society, &c. Read October 16th, 1866.
2. "Life and Death." By George Murray Humphry, M.D., F.R.S., Professor of Anatomy in the University of Cambridge. Read November 6th, 1866.
3. "On the World as the Dwelling-place of Living Beings, and not a Lifeless Globe," with Illustrations. By John Birkbeck Nevins, M.D., of Liverpool. Read November 20th, 1866.
4. "On Sindbad the Sailor." By R. H. Major, F.S.A., M.R.S.Lit., Hon. Sec. R.G.S., &c., British Museum. Read December 4th, 1866.
5. The Conversazione. Held December 18th, 1866.
6. "On Greek Art, especially Architecture." By Dr. Kinkel, F.R.G.S., Professor at the Federal Polytechnicum of Zurich. Read January 8th, 1867.
7. "On Greek Art—Sculpture." Second Lecture. By Dr. Kinkel. Read January 11th, 1867.

8. "On the Habits and Transformation of Insects." By H. T. Stainton, F.L.S., F.G.S., &c., of London. Read Jan. 22nd, 1867.

9. "On Abyssinia." By Dr. Beke, F.R.G.S. Read Feb. 5th, 1867.

10. "Palestine East of Jordan, *i.e.* Gilead and Bashan, Historical and Descriptive." By the Rev. H. B. Tristram, M.A., &c. Read February 16th, 1867.

11. "On the Inhabitants of Yorkshire in pre-Roman Times." By the Rev. William Greenwell, M.A., Canon of Durham. Read March 5th, 1867.

12. "On the Atmosphere and its Effects." By John Wilson, F.R.S.E., Professor of Agriculture in the University of Edinburgh. Read March 19th, 1867.

13. "On the Signs of Hotels and Shops; their Origin, &c." By the Rev. J. T. B. Landon, M.A.

14. "On the Ratio of the Brain and Intellect in Man and Brutes." By Robert Gordon Latham, M.D., F.R.S., &c., of London.

CHRISTMAS LECTURES.

The Christmas Afternoon Course of Juvenile Lectures was delivered by Members of the Society, on subjects selected from the Museum, and embraced much interesting and instructive information. The Council, however, regret to state that the attendance was not so large as usual on such occasions. The subjects were as follows:—

1. "Creative Design, as Illustrated by the Structure of the various classes of Skeletons contained in the Museum." By Mr. C. G. Wheelhouse, F.R.C.S. Read January 15th, 1867.

2. "On Corals, Illustrated by an extensive series of Specimens from the Society's Museum." By the Rev. Thomas Hincks, B.A. Read January 17th, 1867.

3. "Points of Interest connected with some groups of Minerals in the Society's Museum." By Mr. Scattergood, M.R.C.S. Read January 24th, 1867.

The Annual Conversazione took place on the 18th December, and was attended by a large number of the Members and their friends. Besides a considerable collection of Paintings and Photographs, there were exhibited a variety of Indian Curiosities, lent by Captain Hill and Mr. Thomas Walker; articles of daily use among the Russian peasantry, by Mr. Wager; Antique Silver Plate, from the collections of Mr. Hailstone, of Horton Hall, Dr. Heaton, Mr. John William Atkinson, Mr. Nunneley, and Mr. Ferns; a most interesting collection of Vegetable Galls, from Mr. Wilson Armistead; and a selection of Early Christian Lamps from the Catacombs at Rome, contributed by Rev. John Gott. During the evening, Mr. Ansell, of the Royal Mint, exhibited and described his patent invention for detecting Fire Damp in Coal Mines,—a subject which possessed a special interest from the recent explosion at the Oaks Colliery; Dr. Heaton gave a short account of a series of Photographs of Kaffirs and the Scenery of Natal, contributed by Dr. Mann, of Natal; and Messrs. Harvey and Reynolds sent for exhibition a great variety of novel and interesting Chemical, Electro-magnetic, and Optical Apparatus. On no former occasion have the objects exhibited possessed greater interest or excited greater attention on the part of the large assembly that inspected them.

The Council have the melancholy duty of recording the loss which the Institution, in common with the whole town, has experienced in the death of Mr. Gott, one of its earliest and most valued Members. Like his late lamented brother, Mr. Gott joined the Society at its formation, and has ever been among its most munificent supporters, whenever its funds required aid, its buildings

enlargement, or its collections an addition. Though from his retiring habits he never took an active part in the management of the Society, he always manifested an earnest interest in its prosperity and progress, as he did in that of every other Institution of his native town which had for its object the moral and intellectual welfare of its inhabitants or the alleviation of human suffering.

Several highly important additions have been made to the different departments of the Museum during the past year. To the Geological department, the Executors of the late Edwin Austin, Esq., of Conster Manor, near Staplehurst, have forwarded to the Museum his Collection of the remains of the Iguanodon and Hylæosaurus from the Weald of Sussex, which had been bequeathed by that gentleman. This timely bequest enriches the Museum with several characteristic Bones of these rare and extraordinary Reptiles; and it is gratifying, not only from its intrinsic value, but as evidence of the interest which the Collections of the Society excited in a casual visitor from a distant part of the kingdom. From the Lingula Flags of Wales several rare and interesting Fossils have been presented by Mr. Plant, of the Salford Museum; and the Society has obtained by purchase some very fine specimens of the Tibia, Fibula, and Humerus of the Megatherium of Buenos-Ayres.

In Zoology, the principal accessions have been a mature female specimen of the Rhea, or South American Ostrich, presented by Mr. Jowitt; numerous Batrachian Reptiles from Brazil, from Dr. Hobson; several Bones of the Dodo, from Mr. Harry P. Higginson, of Thor-

manby; and specimens of Pteropods, from Mr. Tyerman, of Liverpool.

The small collection of Eggs, which has long been in the Society's possession, has been labelled by Mr. Frederic W. Joy, who has also contributed 93 additional species; and the whole are now being arranged in a case in the gallery, where they will form the nucleus for a series to illustrate British Oology, which it is hoped will be speedily much extended.

The Entomological collection has been enriched by some very important additions, including about 200 specimens of some of the most interesting genera, and beautiful species of the Papilionidæ, the gift of the President (Dr. Chadwick); and some singular generic forms of Coleoptera, from Mrs. Gott, of Armley House, and Mrs. Edward Oates, of Meanwood. The Foreign Insects have also been largely added to by Mr. Walker Joy, to whom the Society is indebted for his continued care of the British Lepidoptera. Mr. Joy has re-arranged the Papilionidæ, supplying several superior specimens in place of some that were already in the Cabinet; and adding printed labels, containing the local as well as the scientific name of each species; so that this portion of the series need not fear a comparison with any similar collection in the kingdom. Of the Sphingidæ, he, in conjunction with Mr. Frederick Buckton, have contributed a very nearly perfect series of fine examples; and these gentlemen promise to continue their labours in like manner through the nocturnal groups of Bombycidæ, Noctuidæ, Geometridæ, &c.

In the Protozoa, two of the most singular genera of Sponges have been added, viz., two specimens of that

extraordinary and elegant species, Venus's flower-basket *(Euplectella Aspergillum)*, presented by Mr. John Barran and Mr. Francis Lupton; and its no less singular congener *(Hyalonema Mirabilis)*, purchased by the Society. From the great interest which these species are attracting among Zoologists, as well as from their rarity, the acquisition of specimens has long been much desired.

Foremost among the objects that have been added to the department of comparative Anatomy, is the munificent contribution by the Mayor of Leeds of a Skeleton of the Giraffe. In order to further the study of the Anatomy of the different groups of Animals, the formation of a series of illustrations of the bony framework of the various genera has long engaged the attention of the Curators of Zoology, and the Museum possesses a valuable collection of many of the most remarkable forms. The genus Giraffa, however, has long been unrepresented, and the Society is therefore greatly indebted to Mr. Fairbairn for the readiness with which, as soon as he was informed that a perfect skeleton might be obtained from the College of Surgeons in London, he offered to present it to the Museum as his Mayor's gift. As a collection of human crania would be highly interesting, with a view to exhibiting a complete series of the principal Types of the Human Family, the assistance of the Members is earnestly requested in procuring Skulls of the natives of different countries, both ancient and recent.

The Archæological department has not been overlooked. An interesting and varied collection of objects from the Lake Dwellings of Robenhausen and Wangen, in Switzerland, has been presented by Mr. Kitson, of Elmete Hall. It comprises Bone Chisels, and Hackles

for Flax, Stone Implements, Arrow and Spear Heads, with the stones on which they have been rubbed into form; several fragments of Textile Fabrics and Twine, perforated Teeth, Barley, Wheat, Apples, Raspberry Seeds, Spindle Wheels, &c., &c. The entire series was selected by Dr. Keller, of Zurich, whose great experience is a guarantee that they are genuine relics from the above localities. The Society has also received some fine examples of Flint Implements from the Valley of the Somme at Abbeville, from Mr. Prestwich; and from Mr. Farrer, of Ingleborough House, several Stone Implements found in a subterranean building in the Brock of Barian, on the mainland of Orkney. Mr. J. Glennon, of Dublin, has presented a double Mortuary Urn of rude construction, from a Cromlech in Ireland; Dr. Verity, of Southwoods, and Mrs. Hamer, of Daleside, near Thirsk, several Relics from Tumuli in that neighbourhood. Mr. Wardell has added two Querns, and plaster casts of ancient moulds for casting Celts, found in Wales; Mr. Samuel Hey, a Sculptured Tablet from Nimroud; and Mr. Ferns, a Lamp from the same locality.

To the Ethnological Collections several interesting objects have been presented by Capt. the Hon. Horace Lascelles, Mr. Hailstone, and Mr. Bateson; and the whole of the specimens in this department have been labelled, so as to convey that information to visitors, the want of which has hitherto detracted so much from the interest of this department of the Museum.

The Minerals, which had been arranged according to the classification of Phillips, have been cleaned and re-arranged under their chemical bases, in accordance with the more modern system adopted in the British

Museum. Although this department contains a very fine collection of specimens, the new classification has shown that there are still many combinations unrepresented, which it would be desirable to supply in order to make the series an exponent of the Text-Book of the Student.

Still further to carry out the design of making the Museum correspond with the present state of scientific knowledge, the Council have commenced re-modelling the Geological Collections. The specimens are being cleaned and re-mounted; and Mr. J. W. Salter, of London, who has been employed in arranging the Woodwardian Museum at Cambridge, and other public Institutions, has been engaged to re-arrange and name them.

The Library continues to receive from various Foreign and British Scientific Societies their periodical publications as they are issued. A list of these will be found among the List of Donations; and important as they are as chronicles of the ever-extending progress and spread of science, the Council would be glad to find that they were more frequently consulted by the Members and Subscribers.* The Proceedings of the Royal Society of London have been presented to the Library by that distinguished body; and the Representatives of the late Mr. Henry Christy, of London, have forwarded, through Mr. Jowitt, all the published parts of the valuable work on the Cave Discoveries in the Valley of the Dordogne, in France, entitled *Reliquæ Aquitanicæ*, by Edward Lartet and Henry Christy. Among the recent additions will be found a file of the *Leeds Intelligencer*, extending from

* The Catalogue of the Library may still be had at the Museum, price 6*d*.

1754 to 1866, contained in about 90 volumes, which has been presented by Mr. Kemplay, and forms a useful reference on subjects of local interest.

During the Session, a Sub-Committee has been appointed to consider how far the Meteorological Observations which have been taken at the Hall for so many years could be made available for the information of the public; and, at their recommendation, a Monthly Chart or Diagram has been placed in one of the front windows of the Hall, exhibiting, by means of a series of lines, the daily fluctuations in the Barometer, Thermometer, Hygrometer, and Rain Guage.

The annexed is a summary of the results derived from the monthly averages for the past year.

1866.	Mean Temperature.	Mean Height of Barometer.	Total Amount of Rain in Inches.
January	41	29·480	1·790
February	39	29·340	2·130
March	39	29·390	0·970
April	45	29·620	1·145
May	51	29·680	0·660
June	59	29·610	2·240
July	59	29·630	3·790
August	58	29·446	3·160
September	53	29·350	4·356
October	50	29·780	2·318
November	44	29·560	3·472
December	43	29.530	2·164

The greatest degree of heat as indicated by the Thermometer in the Sun was 122 on the 27th of June; greatest in the shade 91 on the 12th of July, and minimum 19° on the 1st of March.

The greatest Barometric pressure was on the 25th of January, being 30·300, the temperature of the Mercury being 61°; the least pressure was on the 9th of January, being 28·600, temperature of Mercury 51°.

The greatest fall of Rain was on the 15th of November, being 1·100.

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FROM JULY 1st, 1866, TO JUNE 30th, 1867,

RECEIPTS.	£.	s.	d.	£.	s.	d.
To Balance in Bankers' hands	103	19	3			
,, ,, Curator's hands	24	13	6½			
				128	12	9½
,, Subscriptions of 81 New Proprietary Members at 21*s.* each	85	1	0			
,, ,, 82 New Ordinary Members at 21*s.* each	86	2	0			
,, ,, 25 Old Ordinary Members at 42*s.* each	52	10	0			
,, ,, 161 Old Annual Subscribers at 21*s.* each	169	1	0			
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,, ,, 160 Old Annual Subscribers at 5*s.* each...	40	0	0			
,, ,, 30 New Annual Subscribers at 5*s.* each	7	10	0			
,, Arrears	3	3	0			
				465	8	0
,, Rent of Cellars	50	0	0			
,, Rent from the Geological Society ...	20	0	0			
,, Rent of Lecture Room	98	0	0			
				168	0	0
,, Receipts for admission to the Museum	132	14	11			
,, Receipts at the Conversazione... ...	25	5	0			
				157	19	11
,, Donation from Mr. Emsley	10	0	0			
,, Discount from the Gas Company ...	0	3	8			
,, Sale of 13 Catalogues	0	6	6			
,, Interest from Bankers	3	18	0			
				14	8	2
				£934	8	10½

DISBURSEMENTS.	£.	s.	d.	£.	s.	d.
By Repairs of the Building and Property ...	77	7	4			
,, Taxes and Rates...	2	17	4			
,, Insurance...	9	0	0			
,, Coals and Coke	14	11	10			
,, Gas	23	3	10			
,, Cleaning the Hall	9	0	0			
				136	0	4
,, Salary—Curator	200	0	0			
,, ,, Assistant Curator...	9	10	0			
,, ,, Porter	31	4	0			
				240	14	0
,, Collections—Geological Museum ...	14	12	1			
,, ,, Zoological ditto	63	10	8			
,, ,, Archæological ditto ...	19	10	9			
,, ,, Industrial...	0	14	0			
,, ,, Library...	44	1	6			
				142	9	0
,, Postages	8	12	8			
,, Printing and Advertising	24	19	6			
,, Expenses of Lecturers	45	11	2			
,, Expenses at the Conversazione... ...	46	0	5			
,, Commission on Collecting Subscriptions	8	2	0			
,, Sundries	58	2	5½			
,, Subscription to Society of Arts	2	2	0			
,, Bankers' Commission...	1	10	0			
				195	0	2½
,, Balance due on the Building Account				102	14	3
,, Balance in Bankers' hands	92	1	1			
,, Balance in Curator's hands	25	10	0			
				117	11	1
				£934	8	10½

DONATIONS AND ADDITIONS

TO THE

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GEOLOGY AND MINERALOGY.

A valuable Series of Bones of the Iguanodon and Hylæosaurus from the Weald of Sussex	Bequeathed by the late Edwin Austin, Esq., of Conster Manor.
Very fine Mass of Garnets, in Mica Schist, from Vancouver's Island	Capt. the Hon. Horace Lascelles, R.N.
Fine Specimens of Labradorite, Uranite, Chromate of Lead, Amber, Talc, Steatite, Fossil Ivory; Specimens of Crustacea from the London Clay; Ammonites from the Bath Oolite and Oxford Clay	Purchased by the Society.
Portions of Paradoxides Davidis, from the upper Cambrian or Lingula Flags, at Tyddyngwladis, North Wales; Lingula Davidsii, Olenus Cataractes, Orthis Lenticularis, and Cast of a part of a large Specimen of Paradoxides Davidis	Mr. J. Plant, F.G.S., Salford.
Specimens of Chrysolite, Turquoise, Opal, Cat's Eye, and Amber	†Mr. J. P. Calvert.
Fine Specimen of Copper Ore, with Cobalt and Lead; and small Traces of Iron, from Alderley Edge, Cheshire ...	Mr. W. F. Gaunt.
Horn of the Red Deer, found in gravel 59 feet from the surface, while sinking for the piers of Trent Bridge, Lincolnshire	Mr. C. Patchett, Ardsley.
Specimen of Iron Pyrites, from California	Mr. C. Johnston.

ZOOLOGY.

Several Species of Pteropods and shells	Mr. Tyerman, Botanical Gardens, Liverpool.
A very fine Specimen of the Wild Cat, shot in Black Mount, Tyndrum, Ross-shire	J. F. Wyllie, Esq., Bolfracks, Taymouth.
Mature Specimen of the Female South American Ostrich (Rhea Americana)...	†John Jowitt, Esq.
Specimen of the Lemon Sole (Solea Pegusa).....	Mr. Frank Buckland, F.L.S., of London.
Two very fine Specimens of the Bony Palates of Species of Ray, from Madras, Strombus Cornutus; and 2 Corals from the Red Sea.....	†Edward Atkinson, Esq., F.L.S.
Specimens of Carocolla Lapicida and Clausilia Rugosa	Mr. John Dixon.
Specimens of Helix Concinna	Mr. Blackburn.
A valuable Series of Exotic Butterflies and Moths, all new to the Society's collection	†Dr. Chadwick (the President).
Several very interesting Specimens of Foreign Coleoptera; and a fine Specimen of the Indian Vulture	Mrs. Gott, Armley House.
Very fine Specimen of the Bird-catching Spider; and several Exotic Coleoptera	†Mrs. Edward Oates, Meanwood.
Specimen of an exceedingly rare British Insect, Apate Capucinus, taken at Thorp Hall, near Leeds.....	†William Glover Joy, Esq.
Specimens of the Undulated Parroquet, and Red-rumped Parroquet	†Col. Child.
Several Insects from Abyssinia	†Edward Atkinson, Esq., F.L.S.
Specimens of Cyclas Ovale.....	Mr. J. Dixon.
Specimen of the Laughing Jackass, (Dacelo gigas), from Australia	†Mr. E. J. Smith.
Very fine and perfect Specimen of The Venus's Flower Basket (Euplectella Aspergillum), from the Philippine Islands	†John Barran, Esq., Chapel Allerton Hall.
Specimens of the Glassy Rope Sponge (Hyalonema Mirabilis), from Japan ...	Purchased by the Society.
A Series of Bones of the Dodo, from the Mare Aux Songes, Mauritius	Harry P. Higginson, Esq.

5 Snakes and a Lizard, from South Africa	Rev. Wm. Bramley, Beaufort West, South Africa.
20 Specimens of Batrachian Reptiles from Brazil.....	Dr. Hobson.
A fine articulated Skeleton of the Giraffe (Giraffa Camelopardalis).....	†Andrew Fairbairn, Esq. (Mayor of Leeds).
Fine Specimen of Venus's Flower Basket (Euplectella Aspergillum)	Francis Lupton, Esq.
50 Eggs of British Birds	Mr. Frederick W. Joy.
A valuable Series of the British Sphingidæ, Bombycidæ, and Noctuidæ.....	†Walker Joy, Esq., and Frederick Buckton, Esq.
A valuable Collection of Foreign Insects	†Walker Joy, Esq.
Specimens of the Red Coral of Commerce	Purchased by the Society.

ARCHÆOLOGY, AND MISCELLANEOUS OBJECTS.

A Lamp from the excavations at Nimroud (Nineveh)	†Mr. Francis Ferns.
An Early Christian Lamp, with the sacred monogram, probably from the Catacombs at Rome	Purchased by the Society.
Sculptured Tablet from Nimroud	†Samuel Hey, Esq.
2 Querns, found near Leeds; a Stone Vessel supposed to have been a Pest Basin; Casts of Moulds for the casting of Bronze Weapons, found at Anglesea, Dorset, Wilts	Mr. James Wardell.
A very remarkable Double Mortuary Urn, found at Ratouth, County of Meath, while cutting a drain	Mr. John Glennon, Dublin.
Several coarse Stone Implements, probably used for bruising grain, found in an ancient subterranean chamber, at the Broch of Borian, mainland of Orkney	†James Farrer, Esq., Ingleborough House.
Bone Ring found with a Skeleton in a tumulus at Silver Hill; and Flint Implements from a tumulus at Boltby ...	Mr. Manners Verity, Southwood.
Bronze Box and Chain; Bronze fibula Portion of a Knife, and other relics, taken from a Tumulus at Sunnybank, near Helmsley	Mrs. Hamer, Daleside, near Helmsley.
A most valuable and interesting Series of Specimens from the Lake Habitations of Wangen and Robenhausen, in Switzerland, consisting of Fragments of	†James Kitson, Esq., of Elmete Hall.

Hearthstones, Corn Crushers, Stone Celts, Fragments of Deer's Horns, Deer's Ribs partially prepared for flax hackles, Awls and Chisels made of Deer's Bones, Spindle Worls, Pottery, Apples, Wheat, Barley, Flint Tools and Arrow Heads, Textile Fabrics, Thread and Twine, Perforated Teeth, Skull of the Dog, and Portions of the Piles, selected by Dr. Ferdinand Keller, of Zurich.....	†James Kitson, Esq., of Elmete Hall.
Native Cloth from Navigator's Islands; Rattle or Charm used by the Medicine Men of Western North America.....	Capt. the Hon. Horace Lascelles, R.N.
Very curious Cap and Mask, from New Britain, one of the South Sea Islands; and Specimens of Betel Nut	†Joseph Bateson, Esq., J.P.
Very large and singular Adze, probably from New Zealand	Edward Hailstone, Esq., Horton Hall.
3 very fine Specimens of Native Drums, from New Zealand, and supposed to be nearly 100 years old; two Indian Shields made of Rhinoceros' skin	Purchased by the Society.
A Bronze Commemorative Medal and Silver Coin	Mr. Cohen.
1 Franc Piece of Leopold I; 2 ditto of Saxony; ½ Franc Pieces of Napoleon I., Charles X., and Louis XVIII; 25 Cents of Frederick William of Prussia; ¼ Franc of Bonaparte First Consul, and ditto of Charles X.	Mr. Murrell Wright.
Cast of the Seal of Tilley Abbey, near Saffron Walden, Essex.....	*Mr. H. Denny.
Several Flint Implements, found at St. Acheul, Amiens	Joseph Prestwich, Esq., F.R.S., London.
An Almanack taken from the Palace of the Ranee of Sansee during the Indian Mutiny	Mr. Bapty.
Memorial Ring of the Earl of Glencarn, the friend and patron of Burns	†Mr. G. A. Linsley.
Pattern Specimens of the new Coinage for Malta, value ⅓ of a farthing	Mr. G. F. Ansell, Royal Mint.
A Series of Specimens to Illustrate the Process of Bookbinding, from the Sheets to the Finished Binding and Gilding, with Cloth and Paper.....	Mr. Tanfield.

Specimens of Gum Copal and Gum Animi, used in the Manufacture of Varnish	Mr. J. Galleway.
A Japanese Tradesman's Pattern Book of Papers for Walls. Folio.....	Deposited by Mr. W. S. Ward.

LIBRARY.

Proceedings of the Boston Society of Natural History, vol x., Parts 1 to 18; Condition and Doings of the Boston Society of Natural History, May, 1861	The Boston Society of Natural History.
Annual Report of the Trustees of the Museum of Comparative Zoology at Harvard College, Cambridge, U.S., 1865; Annual Reports of the President and Treasurer of Harvard College, 1863, 1864, 1865; and two Discourses occasioned by the deaths of Jared Sparks, LL.D., and Charles Beck, LL.D., delivered by Wm. Newell, 1866; and various Pamphlets connected with the University	The Trustees of Harvard College.
The Worthies of Leeds, 12mo.	†Dr. Heaton.
Oversigt; over del Kongelige danske Vedenskabernes Selskabs Förhandlinger og, dets Medlemmers Arberder, i Aaret, 1864; Nos. 1 to 4, for 1865; Nos. 1 to 6, for 1866; Nos. 1, 2, 3, for 1867	The Royal Academy of Denmark.
Ofversigt of Kongl; Vetenskaps-Akademiens Förhandlinger, for 1864	The Royal Academy of Stockholm.
The Anthropological Review, Nos. 9, 10, 11, 12, 13	The Anthropological Society.
The Radcliffe Astronomical Observations for 1863	The Trustees of the Radcliffe Observatory, Oxford.
Memoirs of the Manchester Philosophical Society; 3rd Series, vol. ii.; Proceedings of ditto, parts 3 and 4	The Manchester Philosophical Society.
The Annual Report of the Hull Literary and Philosophical Society, for 1866 ...	The Hull Literary and Philosophical Society.
Transactions of the Academy of Science of St. Louis, U.S., vol. ii., No. 2	The Academy of St. Louis.
Documents Relating to the United States Sanitary Commission, 3 vols., 8vo	The New York Sanitary Commission.

Annual Report of the Smithsonian Institution for 1864, 8vo.	The Smithsonian Institution, Washington.
War Department, Washington, Surgeon-General's Office. Reports on the Extent and Nature of the Materials available for the Preparation of Medicine, and Surgical History of the Rebellion, 4to	The American Government.
Journal of the Royal Geological Society of Dublin for 1865	The Royal Geological Society of Dublin.
Dankerwerk's Holstein Chronicles, folio	†Wm. Chadwick, Esq., Arksey.
The Greenwich Observations for 1864; Value of the Moon's Semi-Diameter, from occultations and Planetary reductions	The Lords Commissioners of the Admiralty.
A File of the *Leeds Intelligencer*, from the commencement in 1714 to the year 1866	†Mr. Kemplay.
Transactions of the Natural History Society of Northumberland and Durham, vol. i., part 11	The Natural History Society of Northumberland and Durham.
Lithographs of the Footsteps of Cheirotherium and Birds, from Stourton Hill Quarry, Cheshire	†Dr. Greenhow.
The Canadian Journal for 1866	The Canadian Institute, Toronto.
Notes on the Ancient Domestic Residences of Tre-Owen, Killwch, and the Waen, by O. Morgan, M.P., F.R.S., and Thomas Walker, Esq., 1861; Notes on the Ancient Domestic Residences of Pentre-bach, Crick, Ty-maun, the Garn Crindau, and St. Julian's, by the same authors; Notices of Pencoyd Castle, by the same, 1864; printed for the Monmouthshire and Caerleon Antiquarian Association, royal 8vo, 1851; Selections from an Antiquarian Sketch Book, by John Edward Lee, royal 8vo.	John Edward Lee, Esq., Caerleon.
Abstract of the Proceedings of the Liverpool Geological Society, 1865 and 1866	The Liverpool Geological Society.
Anniversary Address of the President, read before the Anthropological Society, for 1866; The Popular Magazine of Anthropology, Nos. 1 and 2	The Anthropological Society of London.

Baillieres' New South Wales Gazetteer and Road Guide, 8vo.	Presented by the Government of New South Wales.
Notices of the Ellis's of England, Scotland, and Ireland, from the Conquest to the present time, by W. Smith Ellis, of the Middle Temple, 8vo.; A Plea for the Antiquity of Heraldry, by the same Author; Hurst-Pierpoint, its Lords and Families, Ancient and Modern, by the same Author.....	The Author.
Transactions of the Royal Society of Edinburgh, vol. xxiv., part 2; Proceedings of the Royal Society of Edinburgh, for 1865 and 1866, vols. 1 and 2 ...	The Royal Society of Edinburgh.
The Journal of the Chemical Society for 1866	The Chemical Society of London.
The Zoological Record for 1865, 8vo. ...	Purchased by the Society.
Monthly Notices of the Royal Astronomical Society, for 1866, 8vo.; Memoirs of the Royal Astronomical Society, 4to., vol. xxxiv, 1864 and 1865	The Royal Astronomical Society.
Comptes Rendus; Hebdomadaires des Seances De L' Academie des Sciences, for 1866	Purchased by the Society.
Proceedings of the Zoological Society of London, for 1865.....	The Zoological Society of London.
The Journal of the Geological Society for 1866	The Geological Society.
Report of the British Association for the Advancement of Science, for 1865.....	The British Association.
List of the Specimens of Birds in the British Museum, Part 5—Gallinæ	The Trustees of the British Museum.
Proceedings of the Berwickshire Naturalists' Club, for 1865	The Berwickshire Naturalists' Club.
The Jurors' Reports and Awards of the New Zealand Exhibition, held at Dunedin, Otago, 1866, royal 8vo.	The Government of New Zealand.
Catalogue of the Lepidoptera of Ireland, by Edwin Birchall, 12mo.	The Author.
Papers read before the Huddersfield Archæological and Topographical Association, at the Annual Meeting, July 30th, 1867	Mr. Fairless Barber, Hon. Secretary.

Proceedings of the Royal Society, vol. xv., parts 82 to 89	The Royal Society.
Transactions of the Royal Geographical Society of Vienna, for 1864.....	Herr Franz Foetterle, Secretary.
Comparison of the Standards and Length of England, France, Belgium, Prussia, Russia, India, and Australia, 4to.	The Right Hon. the Secretary of State for War.
Forty-Second Annual Report of the Norfolk and Norwich Museum	The Council.
Proceedings of the Natural History Society of Dublin, vol. iv., part 3	The Natural History Society of Dublin.
A Treatise on Coining, by George F. Ansell, of the Royal Mint, royal 8vo....	The Author.
Annual Reports of the Royal Free Museum and Library, Peel Park, Salford, for 1865 and 1866; Ninth Annual Report of the Council of the Salford Working-Men's College, for 1865 and 1866	Mr. John Plant, Salford Museum.
Reliquiæ Aquitanicæ; being Contributions to the Archæology and Palæontology of Perigord and the adjoining Provinces of Southern France, by Edouard Lartet and Henry Christy, 4to., parts 1, 2, 3, 4.....	The Executors of the late Henry Christy, through Mr. Jowitt.
Proceedings of the Geological and Polytechnic Society of the West-Riding of Yorkshire, for 1865 and 1866.....	The Geological and Polytechnic Society of the West-Riding of Yorkshire.

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EDWARD BAINES AND SONS, PRINTERS, LEEDS.

FORTY-EIGHTH REPORT

OF

THE COUNCIL

OF THE

LEEDS

PHILOSOPHICAL AND LITERARY

SOCIETY,

AT THE CLOSE OF THE SESSION

1867–68.

Read at the Annual Meeting, May 5th, 1868.

LEEDS:
PRINTED BY EDWARD BAINES AND SONS.

MDCCCLXVIII.

IMPORTANT RULE

RESPECTING THE PROPERTY OF THE SOCIETY.

PASSED OCTOBER 8TH, 1860.

That in the event of a dissolution of this Society, its Property and Effects, whether real or personal, shall not be disposed of for the personal benefit of the Members, but shall be appropriated in such manner for the advancement of Science, Literature, or Art, in the town of Leeds, as shall be determined by a majority of the Members at an extraordinary Meeting to be convened for that purpose. But that no dissolution of the Society shall take place without the consent, in writing, of a majority holding not less than two-thirds of the Proprietary Shares.

FORM OF A BEQUEST TO THE SOCIETY.

Every person desirous of bequeathing to the Society any Sum of Money, Specimens, Books, Instruments, or other Property, is requested to make use of the following Form :—

I give and bequeath to the Trustees for the time being of the Society established at Leeds, called "THE LEEDS PHILOSOPHICAL AND LITERARY SOCIETY," *for the use of the said Society, the sum of* , *to be paid out of such part of my personal Estate as I may legally charge therewith.* [Or here enumerate the Effects or Property intended to be bequeathed]. *And I direct that the Receipt of the Treasurer of the said Society for the time being, shall be an effectual discharge to my Executors for the said Legacy.*

REPORT OF THE COUNCIL

AT THE CLOSE OF THE

FORTY-EIGHTH SESSION.

THE Council have pleasure in being able to report that the numbers of the Society continue nearly undiminished, 51 having withdrawn, and 45 new ones having joined its ranks.

The annual statement of Receipts and Expenditure shows that the financial position of the Society is in a satisfactory state. The Council have again to record the liberal donation of £10 from Mr. Thomas Emsley, of Burley.

The following Lectures and Papers have been read during the past Session :—

1. "On the Food of Man in relation to his Muscular Force." By Lyon Playfair, C.B., Ph.D., LL.D., F.R.S., L. and E., Professor of Chemistry in the University of Edinburgh. Read October 22nd, 1867.

2. "On the Norman Sculptures of Lincoln Cathedral," with Illustrations. By the Venerable Archdeacon Trollope, D.D. Read Nov. 5th, 1867.

3. "On the Dialect of Yorkshire, with Illustrative Reminiscences of Old Yorkshire Life and Manners." By the Rev. Thomas Jackson, Prebendary of St. Paul's, London. Read Nov. 19th, 1867.

4. Second Lecture upon the same subject. Read Nov. 21st, 1867.

5. "On the History of Exhibitions, and the General Results of those of 1851, 1855, and 1862." By Professor Archer. Read December 3rd, 1867.

6. "On the Paris Exhibition; its Leading Features, Social and Scientific, with especial reference to Technical Education." By Professor Archer. Read December 5th, 1867.

7. The Conversazione. Held December 17th, 1867.

8. "On Meteors and Meteorites." By Alexander S. Herschel, B.A., Professor of Astronomy in the University of Glasgow. Read January 7th, 1868.

9. "On Formosa." By Dr. Collingwood, F.L.S., &c. Read February 4th, 1868.

10. "Incidents in the Life of our First Prince of Wales (Edward II.) unrecorded in the Histories of England." By P. O'Callaghan, LL.D., D.C.L., F.S.A., &c. Read February 18th, 1868.

11. "On Man and the Mammoth." By Henry Woodward, F.G.S., F.Z.S. of the British Museum. Read March 3rd, 1868.

12. "The Earth, its Shape, Size, Physical Construction and Changes." By James Stuart, B.A., Trin. Coll., Cambridge. Read March 17th, 1868.

13. "On the Scientific Ideas of the Chinese." By the Rev. T. S. Fleming, F.R.G.S., late of Shaw-King, China. Read April 7th, 1868.

14. "On the Climate and Vegetation of the Tropics." By Alfred R. Wallace, F.L.S., F.R.G.S., &c. Read April 21st, 1868.

15. "On the Animal Life of the Tropics." By Alfred R. Wallace, F.L.S., F.R.G.S., &c. Read April 23rd, 1868.

The Christmas Afternoon Course of Juvenile Lectures comprised—

1. A Lecture "On Mount Vesuvius." By J. D. Heaton, M.D., Vice-President. Read January 9th, 1868.

2 & 3. Two Lectures on "Electricity." By J. Chapman Wilson, Esq., F.C.S., Lecturer on Chemistry at the Leeds School of Medicine. Read January 14th and 16th, 1868.

The Annual Conversazione was held on the 17th December, and attracted a full attendance of the Members and their friends. In the course of the evening, Mr. W. F. Barrett, of the International College, London, gave a short lecture "On Sensitive and Musical Flames," with striking experimental illustrations; and Mr. Edward Atkinson exhibited and described the Structure and Habits of Branchipus Eximius, from mud brought from the Pool of Gihon at Jerusalem. In the various rooms of the Society were displayed, besides a collection of Paintings and Photographs, a series of specimens illustrative of the revived manufacture of Venetian Glass, Mosaics, &c., by Messrs. Salviati & Co.; Photographic Views in Palestine, taken in connection with the Palestine Exploration Fund; an extensive collection of objects illustrative of the Dress, Embroidery, Paintings, Coins, and Carvings of the Chinese, by the Rev. T. S. Fleming; specimens of Old Leeds Pottery, by Mr. W. Walker; Gold and Silver Ornaments of Greek, Italian, and Frankish manufacture, by the Rev. John Gott; and Drawings and Paintings by Messrs. Grimshaw, Sutcliffe, Tootal, and Turner.

The Council have again to deplore the removal by death of another of the earliest Members, Mr. T. P. Teale, Honorary M.D. of Dublin, F.R.S., F.L.S., who joined the Society in its Third Session, in 1823, and ever after took an active part in its affairs, especially in the progress of its Museum. When the enlargement of the Hall was commenced, he not only contributed liberally himself, but canvassed zealously and successfully for funds to carry out the undertaking; and, as President, he opened the first Session in the New Building. At a Special

Meeting of the Council, January 7th, the following resolution was adopted and entered in its minutes :—"That the President and Council of the Leeds Philosophical and Literary Society desire to record their sense of the valuable services rendered to that Institution by the late Mr. T. P. Teale. As a Member of Council, Vice-President, and President, during the period of forty-four years, as author of various original and scientific communications, and finally, as Curator of the Museum, he contributed most efficiently to its prosperity and reputation. Deeply feeling the loss sustained by the scientific Society, in common with the town and district around Leeds, its officers would respectfully convey to Mrs. Teale and her family their sincere condolence and sympathy in the severe bereavement they are now sustaining."

The various departments of the Museum have received considerable additions during the past year.

To the Geological Collection, Lord Dudley and Ward has contributed a very fine slab of Wenlock Limestone, containing numerous interesting forms of Zoophytes and Crustacea. Dr. Griffith, of Church Stretton, has sent a valuable series of Fossils, illustrating the Caradoc Sandstone group of Shropshire. Mr. Masters, of Ludlow, has presented various specimens from the Upper Ludlow Rock and Aymestry Limestone; and Mr. George Hunt, of Evesham, has contributed a very fine Fossil Fish *(Tetragonolepas angulifer)* from the Lias of Worcester; and an Os Calcis of an Elephant, from the Brick Earth of that district. The Council have availed themselves of an opportunity of adding to the Collection numerous specimens from the Red Crag of Suffolk. During the

summer, the Geological Specimens from the Palæozoic to the Mesozoic formations have been named and classified by Mr. J. W. Salter, of London, which enhances the educational value of this part of the collection.

The Zoological Museum has been increased by several important Genera and Species of Mammalia—as the Orang Outan, Ursine Howler, Capybara, Capromys and Nycticebus, by purchases made by the Council. The Society is likewise indebted to Mr. R. B. Turner for a fine specimen of that rare Monkey, the Callithrix Personatus, from Bogota; to the Council of the College of Surgeons, through the intercession of Mr. Flower, for specimens of Balean from Physalus Antiquorum; and to Mr. J. W. Teale, of Scarborough, for an Angel Fish, caught at Scarborough, a genus not before represented in the Museum. The arrangement of the British Lepidoptera has been completed as far as the Noctuidæ, by Mr. Walker Joy and Mr. Frederick Buckton, who have also presented a fine series of specimens of the latter Family. The Geometridæ and smaller groups are still wanting, and these, it is hoped, will be supplied by some other Contributor. To the British Crustacea several additions have been made by the Rev. Thomas Hincks; but this class, as well as the Echinodermata, is still very imperfectly illustrated.

In Comparative Anatomy, three highly important acquisitions have been made to the order Edentata, by the liberality of the members, viz., a mature and perfect Skeleton of the Aard Vark *(Orycteropus Capensis)* by Mr. George Taylor, of Buckingham House; and a Skeleton of the Great Ant Bear *(Myrmecophaga jubata)*, by Mr. Samuel Taylor, of Hyde Terrace; and a Skeleton of the

Hairy Armadillo *(Dasypus Sexcinctus)*, by Mr. C. G. Wheelhouse. The timely acquisition of these important genera enables the Museum to illustrate this peculiar order of animals probably more completely than any other provincial collection in the kingdom.

To Dr. Lingan, of Hereford, the Society is indebted for a Moriori Skull from the Chatham Islands, a race of men now nearly extinct. This singular variety of the Human family was obtained for the Society through the exertions of Mr. Samuel Hey.

The Archæological Collection has received several additions of Stone and Flint Implements, from Denmark, Sweden, and America, partly presented by Mr. Thomas Walker, Mr. Fox, Mr. J. Dixon, and partly purchased by the Society.

The Cabinet of Coins has been enriched by the purchase of Drachmæ and Tetradrachmæ of Alexander the Great, Philip 3rd, and Arsaces the 28th, a Didrachm of Ægina, Gold Coin of Theodosius, and several Anglo-Saxon and English Coins.

The Rev. T. S. Fleming, F.R.G.S., has presented 120 Chinese Coins to the Society, collected during several years' residence in that country; and has also been kind enough to arrange the entire Collection of Chinese Coins belonging to the Society under the several dynasties to which they belong.

Mr. Rickards has presented a portion of a Roman Mural Tablet, found on the line of the Roman Wall near Newcastle.

The Council have pleasure in referring to the Specimen of Mosaic Pavement from Aldbro', which was purchased for the Museum a few years since. This has been made

the subject of an interesting paper by the Historian of *Isurium*, Mr. H. E. Smith, in which he fixes the date as the end of the 3rd, or beginning of the 4th century; and it adds considerably to the value and interest of the Pavement, to find that only *one other example* of Roman Pavement depicting the well-known Legend of Romulus and Remus *is known*, which is in Rome, and also that the configuration of the border is of a rare type in Britain. It is not improbable that this Mosaic has been the production of Roman artificers in this county, as the tesseræ are mostly made of *Blue Lias* and *Magnesian Limestone*, both well-known rocks in Yorkshire.

The Staircase wall has received the additional decoration of three very large and beautiful Photographs of *St. Peter's at Rome*, the *Forum*, and the *Colosseum*, framed and glazed, the contribution of Mr. Robert John Hudson.

The Library continues steadily to increase by the contribution of the Transactions and Reports of various learned Societies at home and abroad. Amongst those presented this Session for the first time, may be recorded The Transactions of the Tyneside Naturalists' Club, from its commencement; The Proceedings of the Philosophical Society of Glasgow, from its commencement; Fourteen Volumes of the Monthly Notices of the Royal Astronomical Society of London; and The Proceedings of the Essex Institute of Science (of the United States).

The Chart of the *daily* Meteorological Observations continues to be exhibited at the Hall. This would be considerably improved if the *velocity* and *force* of the wind could be registered by one of Crossley's Anemometers,

which the Committee trust will be added to the instruments by purchase or presentation.

The annexed is a summary of the results derived from the monthly averages for the past year:—

1867.	Mean Temperature.	Mean Height of Barometer.	Total Amount of Rain in Inches.
January	35	29·414	1·968
February	44	29·679	1·294
March	37	29·561	1·530
April	48	29·408	2·175
May	53	29·626	1·565
June	58	29·780	1·635
July	59	29·561	2·615
August	63	29·643	2·290
September	57	29·725	1·625
October	49	29·569	1·666
November	42	29·972	1·000
December	40	29·655	0·221

The greatest degree of heat, as indicated by the Thermometer in the Sun, was 110 on the 27th of June; greatest in the shade 90, on the 13th of August; and minimum 14° on the 2nd of January.

The greatest Barometric pressure was on the 2nd of March, being 30·470, the temperature of the Mercury being 55°; the least pressure was on the 8th of January, being 28·350, temperature of Mercury 48°.

The greatest fall of rain was on the 15th of August, being 1·210.

LEEDS PHILOSOPHICAL AND LITERARY SOCIETY,

FROM JULY 1st, 1867, TO JUNE 30th, 1868.

RECEIPTS.

	£.	s.	d.	£.	s.	d.
To Balance in Bankers' hands	92	1	1			
,, ,, Curator's hands	25	10	0			
				117	11	1
,, Subscriptions of 82 New Proprietary Members at 21*s.* each	86	2	0			
,, ,, 80 New Ordinary Members at 21*s.* each	84	0	0			
,, ,, 21 Old Ordinary Members at 42*s.* each	44	2	0			
,, ,, 169 Old Annual Subscribers at 21*s.* each	169	1	0			
,, ,, 21 New Annual Subscribers at 21*s.* each	22	1	0			
,, ,, 172 Old Annual Subscribers at 5*s.* each	43	0	0			
,, ,, 19 New Annual Subscribers at 5*s.* each	4	15	0			
,, Arrears	3	8	0			
				456	9	0
,, Rent of Cellars	50	0	0			
,, Rent from the Geological Society	10	0	0			
,, Rent of Lecture Room	129	10	0			
				189	10	0
,, Receipts for the Museum	112	5	7			
,, Receipts at the Conversazione	24	10	0			
				136	15	7
,, Sundries	10	4	3			
,, Interest	2	8	0			
				12	12	3
				£912	17	11

DISBURSEMENTS.

	£.	s.	d.	£.	s.	d.
By Repairs	160	17	6			
,, Taxes and Rates	4	6	6			
,, Insurance	9	0	0			
,, Coals	15	14	6			
,, Gas	18	5	11			
,, Cleaning the Hall	11	19	6			
				220	3	11
,, Salaries—Curator's	200	0	0			
,, ,, Assistant Curator's	12	10	0			
,, ,, Porter's	31	4	0			
				243	14	0
,, Collections—Geological	54	13	0			
,, ,, Zoological	59	10	10			
,, ,, Archæological	26	10	0			
,, ,, Library	37	14	4			
				178	8	2
,, Postages	9	7	11			
,, Printing and Advertising	28	10	3			
,, Lectures	88	7	11			
,, Conversazione	50	17	11			
,, Commission to Collector	7	4	0			
,, Bankers' Commission	1	11	0			
,, Sundries	11	15	2			
				197	14	2
,, Balances—Bankers'	57	18	3			
,, ,, Curator's	14	19	5			
				72	17	8
				£912	17	11

DONATIONS AND ADDITIONS

TO THE

SOCIETY'S MUSEUM.

Those marked thus (*) are Honorary Members; thus (†) Members of the Society.

MINERALOGY AND GEOLOGY.

Three Specimens of Eozoon, from Kellberg, in Bavaria and Bohemia	†Mr. Richard Reynolds, F.C.S.
Specimen of Greenstone, from Borrowdale	†Mr. E. Atkinson, F.L.S.
Fine Specimens of Goniatites Listeri and Nautilus Clitellarius	The Halifax Philosophical and Literary Society.
A valuable Collection of Fossils, from the Caradoc Sandstone Group of Shropshire	Dr. Griffiths, Church Stretton, Shropshire.
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Portion of the Orbital region of the Skull of a Whale, dredged up from the River Aire, near Hunslet, 1868	Mr. Squire Mortimer.

ZOOLOGY.

Specimen of the Angel Fish (Squatina Vulgaris), caught at Scarborough.....	Mr. J. W. Teale, Scarbro'.
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Specimen of the common Chameleon.....	†Colonel Child.
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11 Species of British Land and Fresh-water Shells	Mr. Nelson, Birmingham.
Skull of a Moriori, or Native of the Chatham Islands	Dr. Lingan, Hereford, by Mr. Samuel Hey.
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Several Species of Crustacea, from the Coast of Devonshire.....	†Rev. Thomas Hincks, B.A.
3 Plates of Balaen, from the Physalus Antiquorum	The Royal College of Surgeons, London, by Mr. W. H. Flower.
Very fine and perfect Skeleton of the Aard Vark, or Cape Ant-eater (Orycteropus Capensis).....	†Mr. George Taylor, Buckingham House.
Very fine and perfect Skeleton of the Great Ant-eater of South America (Myrmecophaga Jubata)	†Mr. Samuel Taylor, Hyde Terrace.
Fine Specimen of Callithrix Personatus, from Bogota	†Mr. R. B. Turner.
Pair of Small Grosbeaks, from South America	Mrs. E. Birchall, Newlay.

Specimen of the Spotted Dogfish	Mr. D. R. W. Porrett, Bridlington.
Fine Skeleton of the Hairy Armadillo (Dasypus Sexcinctus)	†Mr. C. G. Wheelhouse.
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Specimen of the Neptune's Cup Sponge (Thalissema Neptuni) from Singapore...	Purchased by the Society.
Pair of the Arctic Squa (Lestris Richardsonii)	—. Woolley, Esq., Hull.
Specimens of the King of the Vultures; Capromys Prehensilis; Simia Satyrus; Nycticebus Javanicus; Hydrochærus Capybara; Nasua Rufa; Mycetes Seniculus; Hepoona Cookii; and Zorilla Striata.....	Purchased by the Society.

ARCHÆOLOGY.

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Very fine Spear Head of Flint, found at Kingsfield, near Bridlington	Mr. E. Tindall, Bridlington.
Drachmæ and Tetradrachmæ of Alexander the Great and Philip III; Arsaces XXVIII; Drachmæ and Didrachmæ of Ægina; Gold Coin of Theodosius, found at Market Weighton, and several Anglo-Saxon Coins; a very fine Silver Medallion of Alexander III. of Macedon, in fine preservation; several Silver Coins of Greek Cities and Colonies, viz.: Athens, Corinth, Bretii, Eubœa, Achaia, Heraclea, Thebes, Ægina; Denarii of Faustina, Junr.; Commodus, Lucius Verus; Roman middle Brass of Diocletian, Maximian, Justinus; Roman large Brass of Julius Cæsar, Pompey, &c. ...	Purchased by the Society.

MISCELLANEOUS.

3 very fine Photographs, 7 feet in length, of St. Peter's at Rome, the Colosseum, and the Forum, framed and glazed	†Presented by Mr. Robert John Hudson.
Specimens of the Fruit of Theobroma Cacao and Cassava Bread, Brazil.....	Professor Archer, of Edinburgh.
A Chinese Book	Mr. Salviati.
A very finely carved wooden Staff of Office, from New Zealand.....	Purchased by the Society.
A Firelock of the Volunteers of 1809	Mr. Wm. Trant.

LIBRARY.

The Lake Dwellings of Switzerland, 8vo., by Dr. F. Keller; Prehistoric Times, 8vo., by Sir John Lubbock, Bart.	Purchased by the Society.
Quarterly Journal of the Geological Society, for 1867	Presented by the Geological Society of London.
The Canadian Journal, for 1867	The Canadian Institute, Toronto.
Journal of the Royal Institution of Cornwall, No. xii.	The Royal Cornish Institution.
On a Definite Method of Qualitative Analysis of Animal and Vegetable Colouring Matters, by means of the Spectrum Microscope	H. C. Sorby, F.R.S., the Author.
Reports and Papers read at the Meetings of the Architectural and Archæological Societies of York, Lincoln, and Northampton, for 1862, 3, 4, 5, 6	The Architectural Society, by the Venerable Archdeacon Trollope.
Proceedings of the Royal Society of London, vol. xv., No. 93	The Royal Society of London.
Transactions of the Manchester Geological Society, for 1867	The Manchester Geological Society.
The Radcliffe Observations, for 1867	The Radcliffe Trustees.
Transactions of the Historic Society of Lancashire and Cheshire, vol. vi., Session 1865 and 1866	The Historic Society.
Monthly Notices of the Royal Astronomical Society, vols. i., ii., vi., viii., ix., x., xi., xii., xiii., xiv., xv., xvi., xvii., xviii.	The Royal Astronomical Society.
Proceedings of the Zoological Society, for 1866 and 1867	The Zoological Society of London.
Reliquiæ Isurianæ, by Henry Ecroyd Smith, 4to.	Purchased by the Society.
Proceedings of the Royal Institution of Great Britain, vol. v., pts. 1 and 2	The Royal Institution.
Reports of the Royal Society of Tasmania, for 1862, 1863, 1864, 1865; Monthly Notices of Papers and Proceedings of the Royal Society of Tasmania, for 1863, 1864, 1865; Catalogue of Plants under cultivation in the Royal Society's Gardens at Hobart Town; Results of 25 years' Meteorological Observations at Hobart Town; by Francis Abbott, F.R.A.S., 4to.	The Royal Society of Tasmania.

Proceedings of the Academy of Sciences of Philadelphia, for 1866, parts 1, 2, 3, 4, 5	The Academy of Sciences of Philadelphia.
Transactions of the Connecticut Academy of Arts and Sciences, vol. i., pt. 1	The Connecticut Academy of Arts and Sciences.
Annual Reports of the Secretary of War of the United States of America, for 1866	Edward M. Stanton, Secretary at War.
Proceedings of the Essex Institute, United States, vol. iv., and Nos. 1 and 2 of vol. v., 8vo.; The Naturalist's Directory, pt. 1, North America to West Indies, 12mo.	The Essex Institute, U.S.
Smithsonian Miscellaneous Collections, vols. vi. and vii.....	The Smithsonian Institute.
Proceedings of the Boston Society of Natural History, vol. i., pts. 1 and 2, 4to.; Condition and Doings of the Boston Society of Natural History	The Boston Natural History Society, United States.
Annual Report of the Trustees of the Museum of Comparative Geology at Harvard College, in Cambridge, 1866; Annual Report of the President and Treasurer of Harvard College, 8vo., 1865 and 1866; Catalogus Universitatis Harvardianæ, Catalogue of Officers and Students, for 1866 and 1867.....	The Trustees of Harvard College, Cambridge, U.S.
On Neplula Plumipes, or, Silk Spider of South Carolina, by B. G. Wilder, M.D., Boston	The Author.
Report of the Hull Philosophical and Literary Society, for 1866.....	The Hull Philosophical and Literary Society.
The Anthropological Review, Nos. 14, 15, 16, 17, 18, 19, and 20; Catalogue of Books in the Library of the Anthropological Society	The Anthropological Society of London.
Proceedings of the Huddersfield Archæological and Topographical Society	The Society.
Thirty-fourth Annual Report of the Royal Cornwall Polytechnic Society, for 1866	The Society.
Proceedings of the Philosophical Society of Glasgow	The Philosophical Society of Glasgow.
Report of the Sheffield Philosophical Society	The Sheffield Philosophical Society.
Journal of the Royal Dublin Society, No. 36	The Royal Dublin Society.

The Greenwich Observations, for 1865, 4to.	The Lords Commissioners of the Admiralty.
Historical Notices of the Ninth and Tenth Legions, by the Rev. John Kenrick, M.A., F.S.A.	The Author.
Report of the Halifax Philosophical Society, for 1867	The Society.
Transactions of the Tyneside Naturalists' Field Club, vol. i., ii., iii., iv., vol. v., pts. 1, 2, 4, vol. vi., pt. 11	The Tyneside Naturalists' Field Club.
Relics and Records of Men and Manufactures at or in the neighbourhood of Rotherham, by John Guest, large paper copy.....	The Author.
Report of the Whitby Philosophical and Literary Society, for 1867	The Society.
On the Importance of Spectroscopical Examination of the Vicinity of the Sun, &c., by Professor Brayley, F.R.S..... ..	The Author.
Transactions of the Royal Society of Edinburgh, vol. xxiv., pt. 3, 4to.; Proceedings of ditto, for 1866 and 1867, 8vo. ...	The Royal Society of Edinburgh.
Fifteenth Annual Report of the Free Library, Museum, and Gallery of Arts, Liverpool	The Free Library Committee.
Calendar, for the year 1868, of the Science and Art Department of the Committee of Council on Education	The Science and Art Department, Kensington.
On Roman Camps in the neighbourhood of Ripon, by T. C. Heslington, a paper read before the Ripon Scientific Society	The Ripon Scientific Society.
Mineral Statistics of the United Kingdom of Great Britain and Ireland, for 1865 and 1866, by Robert Hunt, F.R.S.	The Director General of the Geological Society.
Report of the Yorkshire Philosophical Society, for 1867	The Yorkshire Philosophical Society.
Report of the Geological and Polytechnic Society of the West Riding of Yorkshire, for 1867	The Geological and Polytechnic Society.
Julius Cæsar; how he sailed from Iceland and landed in Norfolk, by the Rev. Scott F. Surtees, M.A., &c.....	The Author.

Description of the remains of three Extinct Species of Elephant, collected by Cap. Spratt, C.B., R.N., in the Ossiferous Cavern of Zebbug, in the island of Malta, by George Busk, F.R.S.; Description of a Cuno Skull, by George Busk, F.R.S., M.A., &c.	The Author.
Memoirs of the Royal Astronomical Society, vols. xxxv. and xxxvi.	The Royal Astronomical Society.
Proceedings of the Liverpool Geological Society, 1867 and 1868...	The Liverpool Geological Society.
Thirty-fifth Report of the Royal Cornwall Polytechnic Society	The Royal Cornwall Polytechnic Society.
Reliquiæ Aquitanicæ, by Edouard Lartet, and Henry Christy, pt. 5, 4to.	The Representatives of the late Henry Christy.
Journal of the Historical and Archæological Association of Ireland, vol. i., New Series, 1865	The Society, Kilkenny.
A Ramble on Rumbolds Moor among the Dwellings, Cairns, and Circles of the Ancient Britons, in the Summers of 1867 and 1868	Mr. C. Forrest, the Author.
The Journal of the Chemical Society, for 1867	The Society.
The Zoological Record, for 1867; Comptes Rendus; Hebdomadaires des Séances, De L'Acadamie des Sciences, for 1867	Purchased by the Society.
Report of the British Association for the Advancement of Science, for 1866	The British Association.

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FORTY-NINTH REPORT

OF

THE COUNCIL

OF THE

LEEDS

PHILOSOPHICAL AND LITERARY

SOCIETY,

AT THE CLOSE OF THE SESSION

1868-69.

Read at the Annual Meeting, May 4th, 1869.

Leeds:
Printed at the Office of The Yorkshire Post, Albion Street.

MDCCCLXIX.

IMPORTANT RULE

RESPECTING THE PROPERTY OF THE SOCIETY.

PASSED OCTOBER 8TH, 1860.

That in the event of a dissolution of this Society, its Property and Effects, whether real or personal, shall not be disposed of for the personal benefit of the Members, but shall be appropriated in such manner for the advancement of Science, Literature, or Art, in the Town of Leeds, as shall be determined by a majority of the Members at an extraordinary Meeting to be convened for that purpose. But that no dissolution of the Society shall take place without the consent, in writing, of a majority holding not less than two-thirds of the Proprietary Shares.

FORM OF A BEQUEST TO THE SOCIETY.

Every person desirous of bequeathing to the Society any Sum of Money, Specimens, Books, Instruments, or other Property, is requested to make use of the following Form :—

I give and bequeath to the Trustees for the time being of the Society established at Leeds, called "THE LEEDS PHILOSOPHICAL AND LITERARY SOCIETY," *for the use of the said Society, the sum of* , *to be paid out of such part of my personal Estate as I may legally charge therewith.* [Or here enumerate the Effects or Property intended to be bequeathed]. *And I direct that the Receipt of the Treasurer of the said Society for the time being, shall be an effectual discharge to my Executors for the said Legacy.*

REPORT OF THE COUNCIL

AT THE CLOSE OF THE

FORTY-NINTH SESSION.

At the close of the 49th Session, the Council have pleasure in being able to congratulate the Society on its continued prosperity. Some diminution in the number of Members has undoubtedly taken place, and some decrease in Income, but as the majority of the Members who have ceased to belong to the Society were Subscribers of 5s., the Income has been only slightly affected.

The Council have again the pleasure of acknowledging a liberal donation of £10 from Mr. Thomas Elmsley, of Burley, in Wharfedale.

The Balance Sheet of the Society, which will accompany this Report, will show that in consequence of there having been expended a considerable sum in the purchase of cases, and in extraordinary Repairs of the building, which will be more fully explained in a subsequent part of this Report, there remains a small balance of £15 5s. 2d. against the Society.

The following Lectures and Papers have been read before the Society during the past Session:—

1. "Some recent Observations on the Physiology of Language." By the President, J. D. Heaton, Esq., M.D. Read 20th October, 1868.
2. "On the influence of the Telescopic Researches of the late Earl of Rosse on the Progress of Sidereal and Nebular Astronomy." By E. W. Brayley, F.R.S.

3. "On the Mapping of the Surface of the Moon. By W. R. Birt, F.R.A.S.

4. "On certain questions connected with the Antiquity of the Human Race." By R. Gordon Latham, M.D., &c.

5. "The Mission to Theodore." By H. Blanc, M.D., late captive in Abyssinia.

6. "The Abyssinian Expedition." By Clements R. Markham, F.R.G.S.

7. "The Battle of the Two Philosophies, Mental and Physical." By Rev. Alfred Barry, D.D.

8. "The Greenlanders Past and Present." By Edward Whymper, F.R.G.S.

9. "On the Faculties of Brutes." By Rev. Henry Temple, M.A.

10. My Ramblings in Persia." By Professor Arminius Vambery.

11 & 12. "The Vocal Music of the Elizabethan and Victorian Eras," compared and contrasted By William Spark, Mus. Doc.

A suggestion having been made to the Council that a Special Series of Lectures, illustrative of the National Exhibition of Works of Art collected in the New Infirmary, would be of great use, and no other body being prepared to make the necessary arrangements, some Members of the Society undertook the task, with the sanction and support of the Committee of the Exhibition. The main object of these Lectures was to point out, for the benefit of those who were intending to visit the Exhibition, the principal objects of interest in the several Collections of Paintings, Drawings, Engravings, Portraits, and objects of Archæological, Ceramic, and Artistic Excellence, and this was well attained, by securing the services of gentlemen, whose names were a

guarantee for their eminence in the respective departments they undertook to illustrate. The following is a list of this Special Course of Lectures:—

Introductory Lecture, Friday, June 12th.—"The Characteristics of Fine Art, Ancient and Modern, English and Foreign." By Tom Taylor, Esq., M.A.

Second Lecture, Monday, June 15th.—"Art Applied to Industry." By M. Digby Wyatt, Esq.

Third Lecture, Thursday, June 25th.—"Landscape Art, and its Different Styles, from the time of the Old Masters to the Present Time." By George Redford, Esq., F.R.C.S., Assistant Commissioner.

Fourth Lecture, Thursday, July 2nd.—By Ralph N. James, Esq., Superintendent of the Catalogue of Pictures in the Exhibition. "The Portrait Gallery of Yorkshire Worthies." Delivered by Edward Hailstone, Esq., F.S.A., F.R.S.L., &c., Honorary Superintendent of the Gallery of Yorkshire Worthies.

Fifth and Sixth Lectures, Tuesday, July 7th, and Thursday, July 9th.—"Pottery and Porcelain," with Illustrations. By William Chaffers, Esq., Superintendent of the Museum of Ornamental Art.

Seventh Lecture, Thursday, July 16th—"The Ancient Masters Considered from Modern Points of View." By J. C. Robinson, Esq., F.S.A., Member of the Academy of Fine Arts of St. Luke, in Rome, &c.

Eighth Lecture, Thursday, July 23rd.—"Engravings and Drawings in the Exhibition." By B. B. Woodward, Esq., B.A., F.S.A., Keeper of Prints and Drawings to the Queen.

Ninth Lecture, Thursday, July 30th.—"On the Influence of Art, and the promotion of Taste." By Henry O'Neil, Esq., A.R.A.

The Annual Conversazione was held on the 9th February, and was attended as usual by a large number of the Members and their friends. Mr. Louis C. Crossley,

and Messrs. Harvey and Reynolds, exhibited many interesting and novel experiments, and objects, including Hughes' Roman Type Printing Telegraph; Thomson's new Atmospheric Electrometer; Moffat's Oleographs; Vitro Enamel Photographs; Chladni's Sand Figures; Geissler's Vacuum Tubes. There were also exhibited many beautiful articles of Chinese and Japanese Manufacture, by Miss Holdsworth and Mr. S. L. Nussey; an extensive series of Photographs, taken during the late Expedition to Abyssinia, and lent by Mr. Edward Atkinson; Photographs of Venice, Rome, Vienna, and Spain, by Mr. Stephen Ernest Smith and Mr. Stables; Naya's Photographs of Paintings of the Italian Schools, by Mr. John Rhodes; Imperishable Photographs by Swan's Patent Carbon Process, (by the Patentees); and various others by our Townsmen. A beautiful Marble Bust of Wm. Hey, by Woolner, intended for the New Infirmary, was contributed by the Subscribers. Pictures, Bronzes, Vases, and Italian Plate of the 17th Century, were lent by Mr. Howgate. An interesting series of Rifles, by Messrs. Greenwood and Batley; and of specimens illustrating the Manufacture of the Boxer and Spencer Rifle Cartridges, by Mr. Benson Ford. There were also an extensive series of Paintings and Drawings by local Artists.

The state of the floor of the large Zoological Room had been for some time a source of anxiety to the Council. More than two years ago a deflexion was observed to have taken place, and this during the past year having sensibly increased, the Council felt it necessary to take steps to remove any apprehensions as to its security. Acting under the advice of two of their

Members, Messrs. Filliter and Manning, who kindly undertook to carry out the necessary works, they have, by the introduction of two iron pillars in the Theatre, effectually provided for the support of the floor. This alteration has involved an expense of £120 6s.

It is with extreme regret that the Council have to report that owing to continued indisposition they have lost the services of the Rev. Thomas Hincks, who for many years has rendered most efficient aid to the Society as Member of Council, Curator, and President.

The Council have also lost the services of Dr. Atlay, by his elevation to the See of Hereford. The Bishop of Hereford having very liberally placed at the disposal of the Council the Proprietary Share held by him whilst Vicar of Leeds, the same has, with the approval of the Rev. Canon Woodford, been presented to the Vicar of Leeds for the time being, to be held from time to time, by the existing Vicar of the Parish of Leeds.

The retiring Council have recommended the election of the Rev. Thos. Hincks, and of the Bishop of Hereford, as Honorary Members.

The number of visitors to the Museum during the past year has been 44,988, a number greatly in excess of any former Session, and arising from the attraction of numerous strangers to the town by the Art Treasures Exhibition, no less than 31,189 persons having passed through the Museum in the four months from July to October.

The Collections of the Society have during the past year, by the liberality of several of its Members, received numerous and most important additions. In Geology,

that which claims special notice, is a Skeleton of one of those singular extinct Cursorial Birds of New Zealand, the Elephant-footed Moa *(Dinornis Elephantopos)*, from Otago. Although this species is not one of the most gigantic, it is especially remarkable for the massive proportions of the lower extremities, from which it derives its specific name. An opportunity having occurred of securing so important a specimen, the necessary funds were supplied by subscription by Messrs. J. G. Marshall, Arthur Marshall, S. J. Brown, Dr. Chadwick, Thomas Harvey and Miss Dawson, and through their liberality the Society is in possession of one of the only two specimens of this species of Moa in the Kingdom, the other example being in the British Museum. The Society hopes also to receive shortly from New Zealand a collection of Moa Bones, by which some of the other species of Dinornis may be illustrated. The other additions to this department are a portion of the Carapace of the *Glyptodon Reticulatus*, from Buenos Ayres, an extinct and gigantic analogue of the Armadillo, acquired by purchase; an interesting selection of 38 specimens of Graptolites, from the Upper Llandillo Rocks, of Dumfrieshire, and the Bala Rocks of the Coniston series, from Dr. H. A. Nicholson, of Penrith; and a series of Sharks' Teeth and Cetacean Bones, from the Phosphate Beds, near Charleston, presented by Mr. Cowlan Gravely, of Charleston, U.S.

The Zoological Collections have been enriched by the following valuable additions:—From Dr. Heaton, (the President), a remarkably fine adult male, and also a young specimen, of the Proboscis Monkey *(Presbytes Nasalis)*; from the Mayor, (T. W. George, Esq.,)

three well marked species of Feline Animals, the Chetah *(Gueparda Jubata)*, the Serval *(Leopardus Serval)*, and the Ocelot *(Leopardus Pardalis)*; and by the purchase of a fine specimen of the Puma *(Leopardus Concolar)*, and a rare species, the Kuichua *(Leopardus macroura)*, this family is now very fully represented.

A fine example of the Thrasher or Fox Shark, a rare British species, caught at Bridlington, has been presented by Francis Darwin, Esq., and an interesting Collection of Reptiles, Fish, Crustacea, and Insects, from Australia, by Mr. J. A. Buttery; and the Society has acquired, by purchase, good specimens of four interesting Genera,—the Spiny-tailed Squirrel *(Anomalurus Derbianus)*, the Canada Porcupine *(Erethizon Dorsatum)*, Azaras Opossum *(Didelphis Azaræ)*, and the flying Lemur *(Galeopithecus Volans)*. In Comparative Anatomy, the following important additions must be recorded; by Messrs. Stead and Simpson a skeleton of the Adult Male Arctic Walrus or Morse *(Trichecus Rosmarus)*, probably the finest in the Kingdom, measuring 12 ft. in length; by the President (Dr. Heaton), an entire Skeleton of the Bottle-nosed Whale (*Globiocephalus Svineval*), which is a valuable accession to the order *Cetacea*, hitherto very imperfectly represented in the Museum; by Dr. Chadwick, the Skeleton of the Koala, or Australian Bear (*Phascolarctus Cinereus*), which represents a remarkable Genus of Marsupial Animals, whose Anatomy it has long been the wish of the Curator to illustrate more fully; by the Smithsonian Institution at Washington, a Skull of the Grisly Bear (*Ursus Ferox*), interesting in a Geological point of view, from its supposed relation to the great extinct Cave Bears of Europe. These have also been

added by purchase, the skeletons of two well marked Genera, the Patagonian Cavy *(Dolichotis)*, and that of the Hornbill *(Buceros)*. To the Ethnological Department, Mr. W. Clapham, of Portland, Victoria, has presented two Skulls, one being that of Moko, King of the Ethrick tribe, and the other of a Female from the same locality.

The Archæological Museum has received the following valuable additions:—From Edward Hailstone, Esq., F.A.S., of Horton Hall, near Bradford, an extensive series of Casts of the Royal Seals of England, and of numerous ancient Monastic, Ecclesiastical, and Corporate bodies; and from Mr. Fenteman, a beautiful specimen of Penmanship, being a Table of the Revenue and Expenditure of France in 1787, apparently a public document.

To these must be added as possessing, in addition to their intrinsic value, a local interest, some beautiful Flint Arrow Heads, Scrapers, and Flakes found in the Adel Reformatory Grounds, and presented by Mr. Twigg; specimens of Pottery, consisting of Drinking Mugs and Lamps, Keys, Musket Balls and Pipes, and Glass, found in excavating on the site formerly occupied by the Chantry of St. Mary Magdalene, at the junction of Briggate with Upperhead Row, presented by Mr. H. B. Legg; and a scarce and early Map of Leeds, with elevations of the principal buildings which it then possessed, from Miss Sharp.

The Library continues to receive the Transactions and Reports of the principal Scientific Societies of Great Britain, as well as of several foreign countries.

The Council, in concluding this Report, think it desirable to call attention to the fact that before the close of the next Session this Society, the oldest Scientific Institution in Yorkshire, and one of the most flourishing in the provinces, will have existed *half a century.*

It is believed that of the gentlemen who attended the First Meeting, at the Court House, on the 11th Dec., 1818, and of those who may otherwise be accounted Founding Members of the Society, about 16 yet survive. Would it not be possible to arrange some Meeting of the *Old* and *New* Members, so as to promote the transmission of that spirit which has animated this Society, and also given a stimulus to so many other Societies similarly constituted?

The annexed is a summary of the results of the Meteorological observations derived from the monthly averages for the past year:—

1868.	Mean Temperature.	Mean Height of Barometer.	Total Amount of Rain in Inches.
January	39	29·517	2·360
February	44	29·699	1·225
March	45	29·650	1·615
April	48	29·600	1·645
May	58	29·652	0·855
June	61	29·804	0·130
July	66	29·758	0·260
August	63	29·575	1·645
September	58	29·591	2·925
October	47	29·590	2·405
November	42	29·690	1·590
December	44	29·152	6·465

The greatest degree of heat, as indicated by the Thermometer in the Sun, was 106 on the 5th September; greatest in the shade 94, on the 28th July; and minimum 27° on the 24th January.

The greatest Barometic pressure was on the 15th April, being 30·500, the temperature of the Mercury being 64°; the least pressure was on the 27th December, being 28·390, temperature of Mercury 49°.

The greatest fall of rain was on the 25th September, being 1·060

LEEDS PHILOSOPHICAL AND LITERARY SOCIETY,

FROM JULY 1st, 1868, TO JUNE 30th, 1869.

RECEIPTS.

	£.	s.	d.	£.	s.	d.
To Balance in Bankers' hands	57	18	3			
,, ,, Curator's hands	14	19	5			
				72	17	8
,, Subscriptions of 79 New Proprietary Members, at 21s. each	82	19	0			
,, ,, 79 New Ordinary Members, at 21s. each	82	19	0			
,, ,, 19 Old Ordinary Members, at 42s. each	39	18	0			
,, ,, 148 Old Annual Subscribers, at 21s. each	155	8	0			
,, ,, 18 New Annual Subscribers, at 21s. each	18	18	0			
,, ,, 140 Old Annual Subscribers, at 5s. each	35	0	0			
,, ,, 23 New Annual Subscribers, at 5s. each	5	15	0			
,, 4 Arrears	4	4	0			
				425	1	0
,, Rent of Cellars	50	0	0			
,, Rent from the Geological Society	10	0	0			
,, Rent of Lecture Room	72	2	0			
				132	2	0
,, Receipts for the Museum	203	16	1			
,, Receipts at the Conversazione	21	0	0			
				224	16	1
,, Sundries { Don. from Mr. Emsley £10 0 0; Sub. for pur. of Dinornis 50 0 0; ,, Walrus . 40 0 0; Discount from Gas Co. . 0 3 8 }	100	3	8			
,, Interest	2	15	0			
				102	18	8
				957	15	5
,, Balance due to Banker	15	5	2			
				15	5	2
				£973	0	7

DISBURSEMENTS.

	£.	s.	d.	£.	s.	d.
By Repairs	233	11	0			
,, Taxes and Rates	4	2	4			
,, Insurance	9	0	0			
,, Coals	7	16	9			
,, Gas	10	5	2			
,, Cleaning the Hall	10	3	6			
				274	18	9
,, Salaries—Curator's	200	0	0			
,, ,, Assistant Curator's	11	14	6			
,, ,, Porter's	31	4	0			
				242	18	6
,, Collections—Geological	56	10	10			
,, ,, Zoological	152	5	2			
,, ,, Archæological	13	10	11			
,, ,, Library	27	4	11			
				249	11	10
,, Postages	9	7	8			
,, Printing and Advertising	31	15	6			
,, Lectures	71	6	6			
,, Conversazione	52	13	11			
,, Commission to Collector	8	5	6			
,, Bankers' Commission	1	15	0			
,, Sundries	18	0	1			
				193	4	2
				960	13	3
,, Balance in Curator's hands	12	7	4			
				12	7	4
				£973	0	7

DONATIONS AND ADDITIONS

TO THE

SOCIETY'S MUSEUM.

Those marked thus (*) are Honorary Members; thus (†) Members of the Society.

MINERALOGY AND GEOLOGY.

Gold on Quartz, and Native Gold, from Warpuna, River Grey, New Zealand	Mr. W. R. Mackley, Wilsden.
Hematitic Iron Ore, from Castle Caldwell, Fermanagh	†Mr. E. Irwin.
An interesting Series of Sharks' Teeth, and Cetacean Bones, from the Phosphate Beds, at Charleston, U.S.	Mr. Cowlam Gravely, Charleston.
Two Specimens of Gold Bearing Quartz, from the St. Lawrence Gold Mine, Mount Uniacke, Nova Scotia	Mr. James Walker, Mount Uniacke.
Thirty-three Species of Graptolites, from the Upper Llandillo Rocks, of Dumfrieshire, and Bala Rocks, of the Coniston Series	Dr. H. A. Nicholson, Penrith.
Fine and perfect Skeleton of the Elephant-footed Moa, (Dinornis Elephantopus) from New Zealand	Purchased and presented by †Mr. J. G. Marshall, †Mr. A. Marshall, †Dr. Chadwick, †Mr. S. J. Brown, †Mr. T. Harvey, Miss Dawson.
Portion of the Carapace of the Glyptodon Reticulatus, from Buenos Ayres	Purchased by the Society.
A Series of Fossils, from the Llandovery Rocks, South Wales	Mr. Thos. McKenny Hughes, F.G.S., &c.
Several Specimens of Fish Remains, from the Coal Field of Newcastle-upon-Tyne	Mr. J. P. Barkas, Newcastle.
A Series of Rock Specimens, from Cumberland and Westmoreland	†Mr. E. Atkinson.

ZOOLOGY.

Fine Specimen of Sirex Gigas	†Mr. F. Fryer.
Several Reptiles and Insects, &c., from Australia, including the Frilled Lizard; Stump-tailed Lizard; Monitor; Frogs; Star Fish, &c.	Mr. J. A. Buttery, Sydney.
Specimen of Agama Cornuta, from America	Mrs. Whiting, Headingley Hill.
Several interesting Genera of Insects, from the Amazons; Specimens of Pholidotus Indicus and Tatusia Peba; Four Specimens of Foreign Squirrels, Bosmans Potto, (Perodicticus Potto); Indian Musk (Meminna Indica), Rabbit-eared Paragalea (Paragalea Lagotus); and Skeletons of the Dolichotis Patachonica and Buceros	Purchased by the Society.
Very fine Adult Male Specimen and Young of the Proboscis Monkey (Presbytes Nasalis).....	†Dr. Heaton (the President.)
An interesting Collection of Pteropoda and Heteropoda	Purchased by the Society.
Specimens of Aleira Elegans and Cremnobates Kerauclerenii	Mr. F. P. Marret, Liverpool.
Fine Pair of the Canada Grey Squirrel...	†Dr. Eddison.
Fine living Specimen of the Bird Catching Spider, found in Logwood, which had been in this country upwards of six months	†John Marshall, Esq., Horsforth Hall.
Fine Specimen of the Fox Shark or Thrasher, 12 feet in length, caught at Bridlington, Oct. 15th	Francis Darwin, Esq., Creskill.
Two Pair of Horns and Frontal Bones of the American Deer (Cervus Virginianis)	Mr. Cowlan Gravely, Charleston.
Specimens of the Common Baboon (Cynocephalus Babouin); and White-fronted Lemur (Lemur Albifrons)	Mr. Edmunds, Royal Windsor Castle Menagerie.
Specimen of the Puma (Leopardus Concolor) and Spider Monkey (Ateles Ater)	Purchased by the Society.
Fine Specimens of the Chetah (Gueparda Jubata); Serval (Leopardus Serval); Ocelot (Leopardus Pardalis)	†Thomas W. George, Esq., (Mayor of Leeds.)

Skeleton of the Bottle-nose Whale (Globiocephalus Svineval), caught at Leith, 1867	†Dr. Heaton (the President.)
Specimens of the Canada Porcupine (Erethizon Dorsatum); Azara's Opossum (Didelphis Azaræ); Flying Lemur or Colugo (Galeopithecus Volans); Spiny-tailed Squirrel (Anomalarus Derbianus); Ku-Kang (Nycticebus javanicus); Agile Gibbon (Hylobates Agilis); Flying Fox or Rousette (Pteropus Rubricollis); Bradypus Torquatus; Indian Gerbille (Gerbillus Indicus)	Purchased by the Society.
Skull of the Grizzly Bear (Ursus Ferox), from California	The Smithsonian Institution, Washington
Fine Pair of the Swallow-tailed Kite and several Foreign Hawks; Fine Specimens of the African White Ant and Velella Limbosa	Purchased by the Society.
Skeleton of the Koala or Australian Bear (Phascolarctus Cinereus)	†Dr. Chadwick.
Magnificent Skeleton of the Male Walrus or Morse (Trichecus Rosmarus)	Presented by Messrs. Stead and Simpson.
Skulls of Moko, King of the Ethrick Tribe; and that of a Female Australian, from the Neighbourhood of Portland, Victoria	Mr. Wm. Clapham, Portland, Victoria.
Fine Specimen of Sponge from the West Indies	Mr. Nathan Hodgson, Oswego Fall, America.

ARCHÆOLOGY.

Worked Flints, found on the Wolds, near Fimber	Mr. Ward, Burley, Wharfedale.
A Leeds Sixpence, of 1812	Mr. Wm. Trant, of London.
A fine Flint Dagger, from Denmark ...	†Mr. J. D. Birchall.
Eight Quartz and Stone Arrow-heads, from Indian Graves in America; Flint Javelin and Spear-heads, and a Knife, from Denmark	Purchased by the Society.
An extensive and interesting Series of Flint Flakes, Arrow-heads, Javelin-heads, Scrapers, Knives, and other Flint Implements, found in excavating the Reformatory Grounds at Adel, in 1868-9	Presented by Mr. Twigg, Superintendent.

Two Glazed Earthern Lamps, One Two-handled Glazed Mug, One Glazed Mug, One Key, Tobacco Pipe, and Leaden Stamp, found in an old excavation 12 ft. deep in the solid rock on the site of the Chantry of St. Mary Magdalene; and an ancient Key, Tobacco Pipe, and Two Musket Balls, found in the upper roof; also part of the Glass of one of the Windows of the above Chantry.	Mr. H. B. Legg.

MISCELLANEOUS.

Pike used by the Fenians at Fallaght, March 5th, 1867, taken by Sub-Inspector Burke	†Mr. Edwin Irwin.
Twenty Cakes of Cassava Bread from Jamaica; Native Razor Strop, made of the bark and cellular tissue of the Jamaica Aloe by the Natives of Jamaica.....	Mr. Wm. Tyson.
Etat des Revenus et des Depenses de la France, de sa Population et de son etendue, a l'Epoque de l'Assemblee dea Notable annee 1787, (beautifully written on one sheet, presumed to be an official document)	Mr. Fenteman.
A New Zealand Chief's Mat	Rev. A. Browne, Calverley.
Summer and Snow Shoes of the Sioux Indians	Mr. Nathan Hodgson, Oswego Fall, America.

THE LIBRARY.

Proceedings of the Zoological Society, for 1868, and pt. 1, 1869	The Zoological Society of London.
Reports and Papers read at the Meetings of the Architectural Societies of York, Lincoln, &c., for 1867; Index to the first Eight Volumes of the Papers and Reports read at the above Societies, by the Rev. George Rowe	The Architectural Society, through the Venerable *Archdeacon Trollope.
An Introduction to Fossil Organic Remains, by James Parkinson, 8vo.; Manual of British Vertebrate Animals, by the Rev. Leonard Jenyns, 8vo.....	†Mr. W. S. Ward.

An Essay on the Geology of Cumberland and Westmoreland, by H. A. Nicholson., D.Sc.F.G.S.	The Author.
On the Principles of Æsthetic Medicine, by Joseph Peel Catlow, M.R.C.S.	The Literary Executors of the Author.
Reliquiæ Aquitanicæ, pts. 6, 7, 8, 9	The Executors of the late Henry Christy, Esq.
Report of the British Association for the Advancement of Science, for 1867.....	The British Association.
Report of the Hull Royal Institution, for 1868.....	The Hull Royal Institution.
The Radcliffe Observations, vol. xxx., 8vo.	The Radcliffe Trustees.
The Greenwich Observations, for 1866, 4to.	The Lords Commissioners of the Admiralty.
Gog-Magog ye Albion, or An Hour with ye Guildhall Giants; being a concise historie of those figures, carefully collected from the most authentical Authors and Records of Antiquitie, by Samuel L. Nussey, citizen of Leeds. Imprinted by ye Author, 1867	†Mr. Samuel Leathley Nussey, the Author.
Second Supplement to the Coinage of Scotland, with Lists, Descriptions, and Extracts of Sales, &c., 4to., Cork, 1868	John Lindsey, Esq., the Author.
Five Pamphlets, including—"Further Notices of the Early Inscribed Stones of Wales, at Llanharam"; "On the Preservation of the Crosses, and Inscribed Stones, &c., in Brecknockshire"; "Early Christian Art, illustrated by ivory carvings"; "Remarks upon the Diptychs of the Roman Consuls"	Mr. J. O. Westwood, the Author, Oxford.
Proceedings of the Essex Institute, United States, vol. v., pts. 5-6	The Essex Institute, United States.
Annual Report of the Halifax Literary and Philosophical Society, 1868.....	The Halifax Literary and Philosophical Society.
Proceedings of the Meeting of Civil Engineers, at Leeds, 1868	The Secretary.

Memoirs of the Geological Survey of Great Britain; Mineral Statistics for 1867	By order of the Director General
Scientific Opinion for 1869	The Publishers.
A History of the British Hydroid Zoophytes, by Thomas Hincks, B.A., 2 vols., royal 8vo.	Purchased by the Society.
Thesaurus Siluricus, the Flora and Fauna of the Silurian Period, by J. J. Bigsby, M.D., F.G.S., 4to.	Presented by the Royal Society of London.
Some Account of the Blackmore Museum, Salisbury, 8vo.	The Trustees of the Blackmore Museum.
Transactions of the Royal Society of Edinburgh, vol. xxv. pt. 1; Proceedings of ditto, 1867-68.	The Royal Society of Edinburgh.
Report of the Norfolk and Norwich Museum, for 1868	The Committee of the Norfolk and Norwich Museum.
Transactions of the Historical and Archæological Association of Ireland, No. 4.	The Kilkenny Archæological Society.
Proceedings of the Philosophical Society of Glasgow	The Philosophical Society of Glasgow.
Proceedings of the Manchester Geological Society, for 1868	The Geological Society, Manchester.
Proceedings of the Royal Society of London	The Royal Society of London.
The Registrar General's Reports, for 1868	The Registrar General.
The Quarterly Journal of the Geological Society of London, 1868	The Geological Society of London.
Journal of the Royal Institution of Cornwall	The Institution.
Monthly Notices of the Astronomical Society, for 1868	The Astronomical Society of London.
Transactions of the Historic Society of Lancashire and Cheshire, for 1868.....	The Society.
The Anthropological Review, Nos. 24, 25, 26	The Anthropological Society of London.
The Report of Proceedings of the Geological and Polytechnic Society of the West Riding of Yorkshire, vol. iv., pt. 9, for 1868.....	The Society.

The Zoological Record, vol. iv., for 1868	Purchased by the Society.
The Report of the Royal Cornwall Polytechnic Institution, 1867	The Society.
"On the Relation of the Luminous Prominences on the Faculæ of the Sun," by Professor Brayley	The Author.
The Yorkshire Archæological and Topographical Journal, pt. 1	The Huddersfield Archæological and Topographical Association.
Sur la Machoire Humaine Decouverte, par M. Boucher de Perthes; Dans de Deluvium d'Abbeville, par M. de Quatrefages	*M. Boucher de Perthes, Abbeville.
Reports on the Paris Universal Exhibition, for 1867, 5 vols., 8vo.....	Presented through the Society of Arts.
Memoirs pour Servir a la Connaissance Des Crinoides Vivants Par Michael Sars, 4to., Christiana, 1868	The Author.
Die Erdbeben in der Jahren, 1867 and 1868, Von Carl Ludolf Griesbach ..... Der Jura von St. Veit ber Wien, von Karl Griesbach	The Author.
The Australasian, weekly paper, vol. vi.	The Publishers.
Reports of the Royal Society of Tasmania, for 1866; Monthly Notes of Papers and Proceedings of the Royal Society of Tasmania, for 1866-7	The Royal Society of Tasmania.
War Department (Surgeon General's Office, June 10, 1868)—Report on Epidemic Cholera and Yellow Fever in the United States' Army, during 1862,	By Order of the Surgeon-General U.S. Army.
Proceedings of the Academy of Natural Sciences of Philadelphia, for 1867 ...	The Academy of Sciences, Philadelphia.
The American Conflict, and History of the Great Rebellion in the United States, by Horace Greeley, 2 vols., Royal 8vo.	The Author.
Proceedings of the American Philosophical Society, vol. x., No. 77, 1861 ... Catalogue of the Library of the American Philosophical Society	The American Philosophical Society.

Transactions of the Academy of Science of St. Louis, vol. ii., No. 3	The Academy of Science, St. Louis.
Memoirs Read before the Boston Society of Natural History, vol. i., pt. 3, 4to.; Proceedings of the Boston Society of Natural History, vol. xi., 1866-8; Conditions and Doings of the Boston Society of Natural History, for 1867 and 8, 8vo.	The Boston Society of Natural History, United States.
Smithsonian Contributions to Knowledge, vol. xv., 4to.; Smithsonian Report, 1866, 8vo.	The Smithsonian Institution, Washington, United States.
Reports of the Commissioners of Patents, for the years 1863-4-5, 8vo.	The Commissioners of Patents, Washington, United States.
The Canadian Journal, for 1868	The Canadian Institute, Toronto.

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THE FIFTIETH REPORT

OF

THE COUNCIL

OF THE

LEEDS

PHILOSOPHICAL & LITERARY

SOCIETY,

AT THE

CLOSE OF THE SESSION 1869–70.

Read at the Annual Meeting, May 4th, 1870.

LEEDS:
PRINTED BY CHARLES GOODALL, 16, WOODHOUSE LANE.

MDCCCLXX.

IMPORTANT RULE

RESPECTING THE PROPERTY OF THE SOCIETY.

PASSED OCTOBER 8TH, 1860.

That in the event of a dissolution of this Society, its Property and Effects, whether real or personal, shall not be disposed of for the personal benefit of the Members, but shall be appropriated in such manner for the advancement of Science, Literature, or Art, in the Town of Leeds, as shall be determined by a Majority of the Members at an extraordinary Meeting to be convened for that purpose. But that no dissolution of the Society shall take place without the consent, in writing, of a majority holding not less than two-thirds of the Proprietary Shares.

FORM OF A BEQUEST TO THE SOCIETY.

Every person desirous of bequeathing to the Society any Sum of Money, Specimens, Books, Instruments, or other Property, is requested to make use of the following Form :—

I give and bequeath to the Trustees for the time being of the Society established at Leeds, called "THE LEEDS PHILOSOPHICAL AND LITERARY SOCIETY," *for the use of the said Society, the sum of , to be paid out of such part of my personal Estate as I may legally charge therewith.* [Or here enumerate the Effects or Property intended to be bequeathed.] *And I direct that the Receipt of the Treasurer of the said Society for the time being, shall be an effectual discharge to my Executors for the said Legacy.*

REPORT OF THE COUNCIL

AT THE CLOSE OF THE

FIFTIETH SESSION.

The Council have much pleasure in congratulating the Society on its present condition and prospects. During the past year fifty-three new Members and Subscribers have joined its ranks, while the losses by death and otherwise have been only eighteen. The Accounts, also, which accompany the Report, shew that its pecuniary position is not unsatisfactory.

Its Members and subscribers amount to 613, its annual income is about £710, and its general and unavoidable expenditure about £640, so that it has a sum of £50 to be applied annually to the increase of its Collections.

The Council have pleasure in reporting a Donation of £100, for the general purposes of the Society, from the Rev. James Armitage Rhodes, of Carlton, who has on former occasions been a most liberal contributor to its Funds and Collections; and also a further donation of £10 from Mr. Thomas Emsley, of Burley-in-Wharfedale.

The present Annual Meeting is of no ordinary character, as it marks the close of the first half century of the Society's existence, and seems to invite something more than the usual statement of its present numbers and financial position, suggesting rather the inquiry how far it has accomplished the objects for which it was founded, and perhaps inviting a consideration of what shall be its action for the future.

For the past, the Council trust that the Society will agree with them in thinking that the review of what has been accomplished, though it may reveal some failures, is on the whole eminently satisfactory, and that if it has not achieved everything that its promoters hoped, it has undoubtedly in many respects exceeded their most sanguine expectations. When, in the year 1818, its founders met to recommend the establishment of a Society in Leeds for the promotion of

science and literature, even the most sanguine of them, could scarcely, have anticipated that at the end of only half a century the Society would have twice, if not three times, out-grown the provision which the liberality of its townsmen had made for its accommodation, and that it would be possessed of one of the finest and most capacious buildings that any provincial Society enjoys, still less that it would have accumulated in its Library and Museum so rich a collection of books and specimens in illustration of every branch of Natural History and Archæology, and that in some of its departments its Museum would be unequalled by that of any provincial Society, for the completeness of which it is indebted to the ready munificence of its townsmen, evoked and guided by the knowledge and untiring energy of its Curator, Mr Denny. The Leeds Philosophical and Literary Society while it claims, with pardonable pride, to be the first Institution of the kind in the County of York, rejoices to know that kindred Societies have since been established, and have flourished with more or less of success, in York, Hull, Sheffield, Halifax, Whitby, Scarborough, and Bradford, contributing largely to a taste for the cultivation of Natural History, as well as in no inconsiderable degree to its advancement and completeness by the various collections they have formed to illustrate the Zoology and Geology of their respective districts.

It was doubtless anticipated by the originators of the Society, in conformity with the practice of similar institutions elsewhere, that much of its time would be occupied with papers on the Natural History of the neighbourhood, and that it would be principally occupied with the investigation of local Geology, and of the fauna and flora of the district. Many circumstances have contributed to the nonfulfilment of this expectation, and to the attention of the Society being directed to other objects. Experience has shown that the meetings of the Society, instead of being composed mainly of the students of science, consist of a miscellaneous audience; whom papers of this kind, being necessarily occupied with technical details, are little calculated to interest while the establishment of Societies and of publications specially devoted to each particular branch of Natural History or Philosophy has attracted to them, in preference, all communications connected with their particular study.

The result has been to leave to such Societies as ours rather the popularization and dissemination of knowledge than its local investigation, and it will be found accordingly that a large and increasing proportion of the Lectures delivered before the Society has been of this character. There can be no doubt that in this way the Society has properly ministered to a growing popular want, and it may be expected, as a result of the increasing desire for scientific knowledge among all the classes of the community, that its action will be drawn more and more in this direction. The same tendency of modern education in the direction of science points to the desirableness of increasing, if possible, the facilities for access to the valuable collections of the Society, and to the endeavour to render them more and more available for public instruction. Something has already been attempted in this direction by throwing open the Museum, at a very low charge, during the day, and the numbers who avail themselves of this privilege may be taken as an indication that the boon is not under-valued.

A more important step was taken when, at a meeting of the Council held on September 27th, a sub-committee was appointed to consider whether the Society could promote science teaching in Leeds to a greater degree than it had hitherto done. The sub-committee invited the Honorary Curators to join them in considering the question submitted for their deliberation. An application from Mr. H. H. Sales, on behalf of the Yorkshire Board of Education, for free admission to the Museum upon four occasions of a class of ten school-mistresses studying Physical Geography, was recommended favourably to the Council, which cordially granted the desired permission. Mr. Sales further applied for the gratuitous use of the Lecture Theatre on six evenings, and for the loan of illustrative specimens from the Museum, the object being the delivery of lectures to artizans. The sub-committee considering this application in conjunction with the general question of the promotion of science teaching, decided that it was more desirable to offer the advantages of science classes to all sections of the community than to restrict them to a single body in the social scale. They recommended that classes should be forthwith established for teaching Geology and Zoology,

the respective collections in the Museum being used for their illustration. The sub-committee presented to the Council the following Report:—

The sub-committee of the Council appointed to consider whether this Society should take any special steps for the promotion of science teaching have given careful attention to the question entrusted to them. They invited the honorary curators to meet them in order to state their opinions upon such points as relate to the respective collections under their charge. The sub-committee feel that the present state of public feeling in favour of science teaching gives the probability of success to any well considered movement in that direction. They are also aware that not a little advocacy of technical and science education has been of a vague character, and has failed to discriminate between the teaching of the principles of science and training in their application to the industrial arts. Recognising the importance of the latter to the strength and happiness of the State, and especially to the continued prosperity of such a community as our own, still it is evident that scientific method would first provide for teaching the elements of natural science. For this procedure it would be easy to adduce many reasons besides that of an increased material prosperity. Your committee believe that it would be an error to consider the claims of only a single class of the people, and they have to recognise the fact that hitherto there has been almost a total absence of science teaching in every other class of the community, equally with that of artisans. The teaching of the science of chemistry is already provided for by the classes of several public institutions in this town. It is to certain Natural History subjects that your Committee would look as being those in which this Society may render important service through its Museum. Upon such a point, it is fitting that some of the masters of science should be consulted, and the following extracts will be found to the purpose. Professor Owen has written as follows:—"To descant on the abstract advantage of a knowledge of the works of Creation is neither requisite nor convenient to my present purpose. I may assume the general admission that collections of the several classes of such objects duly prepared, named, and arranged, so as to give the utmost facility for inspection and comparison, are the indispensible instruments in the acquisition and advance of that knowledge. . . . . I have entered more fully elsewhere (address to the British Association at Leeds, 1868), on the reciprocal advantage to both curator and museum arising out of the duty of the former to give public lectures at the museum, illustrative of the collections, and I will only here repeat my conviction that one of the applications of a national museum of natural history involves as a duty of the chief curator of each class or department, the delivery of an annual course of lectures on the classification, habits, instincts, and economical uses of such class or department of natural history."* The late Professor Edward Forbes placed upon record the following opinion:—"It is not the ignorant only who may benefit in the way just indicated. The so called educated are as likely to gain by a visit to a museum, where their least cultivated faculties, those of observation, may be healthily stimulated and brought into action. The great defect of

* "On the Extent and Aims of a National Museum of Natural History," by Professor Owen, F.R.S.

our systems of education is the neglect of the educating of the observing powers—a very distinct matter, be it noted, from scientific or industrial instruction! . . . . . Through the teaching of some of the sections of natural history and chemistry—the former for observation of forms, the latter of phenomena,—I cannot but think the end in view might be gained, even keeping out of sight altogether, if the teacher holds it best to do so, what are called practical applications. For this branch of education museums are the best text-books; but in order that they should be effectively studied they require to be explained by competent teachers." † It will hardly be needful to emphasize the concluding paragraph of Professor Forbes's opinion. The treasures of our own museum and the the opportunity for their proper classification and display are such that the earnest visitor may obtain a considerable amount of instruction. Still, it needs the direction of a skilled guide to get the clue to that harmony which science traces through each kingdom of nature. Your Committee consider that the museum will enable the Society to promote class teaching in the subjects of zoology and geology, and they recommend that arrangements be forthwith made for the delivery of courses of evening lectures upon those subjects. The Committee have considered the question of opening the Museum upon one or more evenings in the week in the interest of the large majority of our population, who cannot visit it during the day. Convinced of the importance of the influences which might thus be extended, and not more for their own sake than as helping to counteract gross and immoral attractions, the Committee feel that no one may say beforehand what would be the whole results of such a trial. Regarding the experiment as a hopeful one, they recommend that the Museum be opened to the public at the usual charge from seven to half-past nine o'clock upon Monday in each week for a period of three months, due publicity being given to this arrangement. The Committee anticipate that from time to time it may be possible to encourage classes of students not directly connected with this Society by granting free admission to the Museum. Doubtless the Council will consider any such applications in a liberal spirit.

Arrangements were made with Mr. Louis C. Miall, of Bradford, for the delivery of a Course of Twelve Lectures upon Geology. The charge for the course was five shillings, or sixpence for a single Lecture. The attendance on the first evening was about one hundred, including a large number of ladies, and this number was well maintained on most of the subsequent evenings. The Council regard this experiment as proving that such Lectures will be received by intelligent and appreciative audiences, and they trust that the scheme will receive further development from their successors.

During the past year another improvement has been introduced, with the view of giving the Zoological Museum

† "On the Educational uses of Museums," by Edward Forbes, F.R.S.

more of an educational character. An entire re-arrangement of the Mammalian Collection, according to the most generally received system of classification, has been carried out under the superintendence of the Honorary Curator of that department, Mr. Edward Atkinson, F.L.S.; who has also prepared, for the use of students, a tabular chart or synopsis of the class, exhibiting at one view the chief characters of the several sub-classes and orders it contains. This chart hangs in the centre of the room, while corresponding sections of it are appended to the cases around, containing the characteristic features of the groups of animals included in each. It is hoped that this plan will greatly facilitate the study (also much aided by the recent additions to the Collection of typical skeletons) of the modifications of form and structural affinities of this part of the animal kingdom. A similar chart is in course of preparation for the Collections of Birds and Reptiles.

For a period of about six months the Museum has been open to the public on Monday Evenings, from seven to half-past nine o'clock, and the average attendance has been 32. This number of visitors is less than might have been hoped for, and it is evident that it is not sufficient merely to open the Museum for evening attendance, but that it is desirable that some one competent for the task should at the same time, give explanations of the objects it contains. Several men of eminence in the scientific world have lately given their support to such a scheme for unfolding the stores of knowledge contained in the Collection of the British Museum, and have acted as guides to large and appreciative parties of artizans.

The annexed is a list of the Papers that have been read during the past Session.

TITLES OF PAPERS, &c.

1869.

First General Meeting, Tuesday, Oct. 19th.—Professor Huxley, LL.D., F.R.S., President-Elect of the British Association, &c., "The Ethnology of India."

Second General Meeting, Tuesday, Nov. 2nd.—The Rev. Canon Woodford, D.D., Vicar of Leeds, "On the Remoter Causes of some Historical Events."

Third General Meeting, Tuesday, Nov. 16th.—The Conversazione.

Fourth General Meeting, Wednesday, Nov. 24th.—Arthur Duke Coleridge, Esq., M.A., "On the Life and Influence of Franz Schubert," with Musical Illustrations.

Fifth General Meeting, Tuesday, Dec. 7th.—Rev. W. C. Lukis, M.A., F.S.A., "On the Pre-historic Monuments of Brittany."

Sixth General Meeting, Monday, Dec. 20th.—J. Scott Russell, F.R.S., First Lecture—"Technical Eduucation ;—What it is, and what it should be, for Masters."

Seventh General Meeting, Tuesday, Dec. 21st.—J. Scott Russell, F.R.S., Second Lecture—"Technical Education ;—What it is, and what it should be, for Workmen."

1870.

Eighth General Meeting, Tuesday, Jan. 4th.—W. F. Barrett, F.C.S., Professor of Natural Philosophy at the International College, London, "Recent Discoveries in Physical Science." First Lecture. Largely illustrated with Experiments.

Ninth General Meeting, Thursday, Jan. 6th.—W. F. Barrett, F.C.S., "Recent Discoveries in Physical Science." Second Lecture. Largely illustrated with Experiments.

Tenth General Meeting, Tuesday, Jan. 18th.—Rev. J. H. McCheane, M.A., "The Poetry of Robert Browning."

Eleventh General Meeting, Tuesday, Feb. 1st.—Rev. C. P. Eden, M.A., "The Comus of Milton."

Twelfth General Meeting, Tuesday, Feb. 15th.—Edward Filliter, M. Inst. C.E., F.G.S., "On the Sewage Question."

Thirteenth General Meeting, Tuesday, March 1st.—William Huggins, F.R.S., "On the Results of Spectrum Analysis as applied to the Heavens." First Lecture.

Fourteenth General Meeting, Thursday, March 3rd.—William Huggins, F.R.S., "On the Results of Spectrum Analysis as applied to the Heavens." Second Lecture.

Fifteenth General Meeting, Tuesday, March 15th.—Dr. Eddison, "On Sleep and Dreams."

Sixteenth General Meeting, Tuesday, April 5th.—William Farr, M.D., F.R.S., D.C.L., "International Decimal Coinage."

Seventeenth General Meeting, Tuesday, April 19th.—George Rolleston, M.D., F.R.S., Professor of Anatomy and Physiology in the University of Oxford, "On the modes of Sepulture employed by the Romans, Romanized Britons, and Anglo-Saxons, from the Fourth to the Seventh Century, in England." First Lecture.

Eighteenth General Meeting, Thursday, April 21st.—George Rolleston, M.D., F.R.S., "On the modes of Sepulture employed by the Romans, Romanized Britons, and Anglo-Saxons, from the Fourth to the Seventh Century, in England. Second Lecture.

The usual Christmas Course of Juvenile Lectures was delivered during the month of January, and comprised the following:—"On Lead in relation to its Geology, Mineralogy, and Industrial Application," by Mr. W. S. Ward, F.C.S.; "On the Transformations of Insects," by Mr. H. Denny, A.L.S.; "On the Physiology of Digestion, the Food we eat and the use we make of it," by Mr. Jessop, F.R.C.S.

The Annual Conversazione was held on the 16th November, and numerously attended, when a great variety of objects of interest was exhibited, as well as numerous works of art and scientific apparatus.

The various Collections of the Society have received many valuable contributions from its friends and members during the past year.

In Geology, the Carboniferous system has had a large accession of more than 200 specimens, in illustration of the mountain limestone of Settle, from the well-known collection of Mr. Burrow, presented by Messrs. James G. and Arthur Marshall.

In Zoology, the Society may be congratulated on the acquisition of several specimens of the greatest rarity and novelty. Foremost among them is the complete Skeleton and a stuffed specimen of the Picheciego (Chlamydophorus truncatus), from Mendoza, in the Argentine Republic, presented by Mr. E. Harry Woods, and Dr. Day. The importance of this addition to the Class Edentata may be estimated from the fact that the various European Museums contain only about eight or nine specimens, some of which are imperfect, and that the animal is considered to be nearly extinct. Another illustration of the same group is the Skeleton of the Little Ant Eater (Cyclothurus didactylus), presented by Mr. Thomas Nussey. In addition to these, may be mentioned the articulated Skeleton of the Capybara, or Water Hog of South America, and the Snapping Turtle, by Mr. Riley Briggs; the Skeleton of Apteryx Australis, by Dr. Heaton, the President; stuffed specimens of those rare birds Owen's Apteryx and Strigops, or the Ground Parrot from New Zealand, and the Skeleton of Douroucouli, by Mr. J. Metcalfe Smith; a Skeleton of the Loris Gracilis, and one of (Nycticebus Javanicus, by Mr. Nathan; several Bones of the Solitaire of Rodriguez, presented by Professor Newton, of Cambridge;

the singular Animal, the Racoon Dog, by Lord F. C. Cavendish; the Skull of Elasmognathus Bairdii, by Mr. Alderman Carter, M.P.; the Hairy-nosed Wombat, by Mr. Joseph Craven; the valuable contribution of Mr. Gellibrand, of Tasmania, consisting of Skins and Skeletons of Thylacinus Cynocephalus, Sarcoptilus Ursinus, the Ornithorynchus, the Dasyurus, several fœtal specimens and a series of Skulls of the above-named animals; a valuable series of Bones of at least three species of Dinornis, from Canterbury, New Zealand, and twenty Skins of Birds, by Mr. G. H. Moore, Glenmarck, New Zealand. In consideration of the great importance of the contributions of Mr. Woods, Mr. Gellibrand. and Mr. Moore, the Council have recommended that these gentlemen's names be added to our list of Honorary Members at the commencement of the next Session. To the above specimens, which have all been presented, must be added several species purchased by the Society, embracing the Genera Cuscus, Hemigallago, Macroscelides Centetes, Ericulus, and the singular ganoid-fish, Calamoicthys Calabaricus, and the Skeleton of an Alligator, ten feet in length.

In the Archæological and Ethnological departments, additions of more than ordinary interest have been made, embracing eighty valuable bronze implements, consisting of swords, palstaves, fibulæ, armlets, torques, celts, &c., from the bogs of Ireland and Italy, purchased by the contributions of several Members of the Society, whose names will be found in the list of Donors; also a series of Saxon, African, and Indian Crania, presented by Sir Charles Hugh Lowther, Bart.; two human skulls, and a variety of native manufactures of the Sandwich Islands, from the Rev. C. G. Williamson; the Skeleton of a native Indian, from the banks of the Essequebo, Skeletons of a Sloth and Alligator, a collection of insects, and an extensive series of fruits, seeds, gums, and articles of apparel, from the Rev. James Farrer, of British Guinea; a pair of ancient shoes and a human skeleton, obtained from a peat moss on Austwick Common, near Clapham, several coins, bronze spear head, Unguentaries, &c., presented by Mr. Farrar, of Ingleborough House; and an extensive series of primitive flint implements, from Bridlington, by Mr. Flooks.

The Library has received the various Transactions and Reports of many of the principal Societies at home and abroad, besides numerous valuable publications from public bodies and private individuals, amongst which they would especially record sixty-four vols. of Catalogues of the Natural History Collections and Ancient Inscriptions, Papyri and MSS. in the British Museum. These have been presented by the Trustees of the British Museum; the whole of which appear in the list of donations.

At the conclusion of the last year's Report a suggeswas thrown out that it might be productive of some benefit to the Society, as also a pleasant reunion, if a meeting of the old and new Members could be arranged to commemorate the termination of the fiftieth Session. In accordance with which a Commemorative Dinner took place yesterday, at the Great Northern Hotel, presided over by Mr. Baines, M.P., one of the original founders. An account of this meeting is appended to the present Report.

The annexed summary exhibits the results of the Meteorological observations derived from the monthly averages of the past year:—

1869.	Mean Temperature.	Mean Height of Barometer.	Total Amount of Rain in Inches.
January	41	29·646	3·365
February	42	29·565	2·200
March	38	29·584	1·805
April	56	29·896	1·325
May	48	29·569	4·250
June	56	29·782	0·600
July	65	29·750	0·300
August	60	29·815	1·330
September	56	29·420	3·740
October	49	29·714	1·170
November	43	29·585	0·885
December	37	29·537	4·115

The greatest degree of heat, as indicated by the Thermometer in the Sun, was 109 on the 28th August; the greatest in the shade 94, on the 28th August; and minimum 18° on the 28th December.

The greatest Barometic pressure was on the 13th March, being 30·500, the temperature of the Mercury being 57°; the least pressure was on the 13th December, being 28·680, temperature of Mercury 56°

The greatest fall of rain was on the 26th May and 11th September, being 0·700.

LEEDS PHILOSOPHICAL AND LITERARY SOCIETY.

STATEMENT OF RECEIPTS AND EXPENSES FOR THE YEAR.

RECEIPTS.

	£	s.	d.	£	s.	d.
Balance in Curator's hands				12	7	4
78 New Proprietary Members, at 21s.	81	18	0			
82 New Ordinary Ditto 21s.	86	2	0			
19 Old Ordinary Ditto 42s.	39	18	0			
152 Old Annual Subscribers, at 21s.	159	12	0			
28 New Ditto 21s.	29	8	0			
144 Old Annual Subscribers, at 5s.	36	0	0			
32 New Ditto 5s.	8	0	0			
Arrears	12	12	0			
				453	10	0
Rents of Cellars	50	0	0			
,, from the Geological Society	10	0	0			
,, of Lecture Room	71	14	0			
				131	14	0
Receipts for the Museum	108	8	2			
,, Conversazione	15	5	0			
				123	13	2
,, from Mr. Miall's Lectures				23	11	0
Sundries: Rev. J. A. Rhodes	100	0	0			
Sundries: Thomas Emsley, Esq.	10	0	0			
Sundries: Subscription for Bronze Implements	26	0	0			
Sundries: Sale of old Glass	2	0	0			
Sundries: Interest	0	15	0			
				138	15	0
				£883	10	6

DISBURSEMENTS.

	£	s.	d.	£	s.	d.
Repairs	59	0	10			
Taxes and Rates	3	18	2			
Insurance	15	9	8			
Coals	12	5	6			
Gas	39	18	2			
Cleaning the Hall	10	3	0			
				140	15	4
Salaries—Curator's	200	0	0			
,, Assistant Curator's	43	7	3			
,, Porter's	31	4	0			
				274	11	3
Collections—Geological	0	1	9			
,, Zoological	78	12	1			
,, Archæological	47	8	3			
,, Industrial						
,, Library	21	4	9			
				147	6	10
Postages	12	10	2			
Printing and Advertising	38	0	0			
Lectures	107	19	3			
Mr. Miall, for Geological Lectures	18	0	0			
Conversazione	44	11	2			
Commission to Collector	6	13	0			
Bankers' Commission	1	8	0			
Sundries	9	15	2			
				228	16	9
				791	10	2
Balance due to Bankers', 30th June, 1869				15	5	2
				806	15	4
Balance at the Bankers	44	14	6			
,, in Curator's hands	32	0	8			
				76	15	2
				£883	10	6

THE FIFTIETH ANNIVERSARY.

The Fiftieth Anniversary of this Society was commemorated on May the Second, by a dinner in the Great Northern Railway Station Hotel. About eighty covers were laid. Mr. EDWARD BAINES, M.P., occupied the chair, and was supported by the following gentlemen :—

Right.

Dr. Heaton, President of the Society.
The Vicar of Leeds (Canon Woodford).
Mr. Wm. Hey.
Mr. H. W. Ripley, President of the Bradford Philosophical Society.
Mr. Alderman George.
Mr. Alderman Oxley.

Left.

Rev. Charles Wicksteed.
Dr. Kelburn King, President of the Hull Philosophical Society.
Mr. Samuel Clapham.
Mr. J. E. Norris, President of the Halifax Philosophical Society.
Sir A. Fairbairn.
Mr. J. W. Tottie, Coniston Hall, Bell Busk.

Vice-Chairmen, Dr. CHADWICK and Mr. NUNNELEY.

The other tables were occupied by the following gentlemen :—

Dr. Allbutt.
Mr. Edward Atkinson.
Mr. J. W. Atkinson.
Mr. Alderman Addyman.
Mr. J. R. Asquith.
Mr. F. Baines.
Mr. Alderman Barran.
Mr. R. H. Braithwaite.
Mr. Wm. Brown.
Mr. J. P. Clapham.
Mr. S. Clapham, jun.
Mr. Joseph Cliff.
Mr. Wm. Cooke.
Mr. T. T. Dibb.
Mr. Henry Denny, Curator of the Society.
Dr. Eddison.
Mr. R. W. Eddison.
Mr. F. Eddison.
Mr. G. A. Emsley.
Mr. E. Filliter.
Mr. F. Ferns.
Mr. S. Freeman.
Mr. James Fox.
Dr. Greenhow.
Mr. Abraham Horsfall.
Mr. John Horsfall.
Mr. James Holroyd.
Rev. W. Lee Howarth.
Mr. J. W. Hill.
Mr. W. Huggon.
Mr. J. Ingham Ikin.
Mr, Wm. Illingworth.
Mr. Edward Irwin.
Mr. John Latimer.
Mr. Francis Lupton.
Mr. Arthur Lawson.
Mr. John Manning.
Mr. S. D. Martin.
Rev. J. H. McCheane.
Mr. Charles Naylor.
Mr. Alderman Nussey
Mr. Thomas Nussey.
Mr. Gustave Nathan.
Mr. Henry Oxley.
Mr. W. N. Price.
Mr. R. Reynolds.
Mr. James Rider.
Mr. T. W. Stansfield.
Mr. J. E. Smith.
Mr. James Seaton.
Mr. Joseph Shackleton.
Mr. T. P. Teale.
Mr. Joseph Thackray.
Mr. Samuel Taylor.
Mr. R. B. Turner.
Mr. W. S. Ward.
Mr. Edmund Wilson.
Mr. W. Ward, of Churwell.
Mr. C. W. Wardle.
Mr. T. Whiteley.
Mr. Thomas Wilson.

The Dinner Committee consisted of Mr. J. Ingham Ikin, Mr. Edward Atkinson, and Mr. Edward Filliter. Mr. Thomas Wilson and Mr. Richard Reynolds acted as honorary secretaries, and the council of the society as stewards. After a very handsome and admirably managed dinner had been served, the toast of "The Queen" was proposed from the chair, and duly honoured.

The CHAIRMAN then gave "The Leeds Philosophical and Literary Society, and the health of the President, Dr. Heaton." He said—I have now to invite your attention to the toast which indicates the special object of our festive gathering. But before I propose to you the prosperity which we wish to the Leeds Philosophical and Literary Society, and offer to you a few reminiscences with regard to the history of this Society, I must be permitted to express my thanks to the Council and the Members by whose favour I have the high honour to preside on this occasion. I accept that office from men with whom I have worked in days and years that have gone by with deep thanks; but at the same time I know that I am indebted for the honour to the fact that I am, with one exception, the only gentleman present who was at the original formation and foundation of the Philosophical Society. My friend, Mr. Osburn, whose learned labours so long adorned the Society, is no longer able to attend a meeting of this nature. He has sent me a note expressing his sincere regret at his inability to be with us, and referring to the deep interest which he takes in the occasion. My venerable friend, Mr. Samuel Clapham, is the only friend who, with myself, is here to represent the party who originally met in the Leeds Court-house to lay the foundation of this Society. My friend, Mr. Joseph Mason Tennant, who was present and who is the only other Member living who was present, is not able to be with us this evening. I must now offer my warmest congratulations to the Council and to the Members of this Society on the happy state of efficiency and prosperity in which I find the Society existing at this day. The Leeds Philosophical Society is, I believe, one of the oldest and one of the most successful of the Philosophical Societies which exist out of London. Fifty years have now passed since that Society was formed, and we meet in our jubilee year. But a few years had elapsed after the strange excitement of a great war had subsided when this institution took its rise; and the period that has passed over us during the existence of this Society, has, I believe, rarely been known in the history of any country in the world. A period of such great happiness, of such continued prosperity, of such advances in knowledge, in science, and in art, of such importance in constitutional liberties, of such extension in the press, of such advances in every direction, has, I believe, had no parallel, so far as I remember, in any history. I feel grateful for many things in looking back over a long period of public life—grateful for the multiplied mercies with which it has been crowned; and no less grateful that I have been permitted to live in an age of such advancement. For it is a happy thing to live when light and knowledge are advancing, when the power of man is extending, when education is increasing, and when so much order and peace have been experienced. I am able now to read to you a list, which I am sure you will hear with very great interest, of the gentlemen who assembled in the Court-house, on the 12th December, 1818, when we were considering the desirableness of forming a Society of this nature.

There had been some discussion previously in the newspapers on the subject, and several of us informed our friends of the meeting. One of the most active gentlemen to bring us together was Dr. Hunter; and we had very soon given us a name so eminent as almost to be an assurance of success. We met under the presidency of one of the best, one of the greatest men whom Leeds ever produced — William Hey — then in the eighty-third year of his age, and within three months of his death, one of the principal founders of that glorious institution, the Leeds Infirmary—and in a much earlier period of his life a member, along with Dr. Priestley, of a small and comparatively private scientific society which existed in this town, but which did not survive many years. We all felt that his sanction was of the highest possible value. All the names I have to read are names you will receive with interest. They tell of families and of individuals whom we all look back upon with just and honourable pride, Mr. Marshall, Mr. Gott, Mr. Tottie, Mr. George Banks, Dr. Thorp, Mr. John Bischoff, Mr. Thos. Blayds, Mr. W. Hey, jun., Mr. Michael Thomas Sadler, Mr. John Atkinson, Mr. Jonathan Wilks, Mr. Luccock, Mr. W. Osburn, Dr. Payne, Dr. Hunter, Mr. Chas. T. Thackrah, Mr. John Gott, Mr. West, Mr. E. S. George, Mr. S. Clapham, Mr. J. M. Tennant, and Mr. Baines, your present chairman—who was the youngest member of those assembled on that evening. Well, I need not say to those who know anything of the past history of Leeds that they will at once recognise in the list gentlemen of the greatest intellectual distinction and of the highest position in the town, gentlemen belonging to all parties and to all sects—not a few of whom rendered, before they quitted this world, the greatest service to their native town and country, and many of whom had become famous in the world of science and letters. And that meeting, thus composed, was a good augury for the future prosperity of the Society. It has borne the stamp that was then impressed upon it of impartiality, of a free, catholic, liberal, and generous spirit. The preliminary meeting was held, as I have stated, on the 11th December, 1818, and it was then resolved to form a Philosophical and Literary Society, something upon the model of those societies which then existed in the great towns of Manchester and Liverpool. The first-named society was presided over by that illustrious scientific man, John Dalton, and the latter had for its chairman the no less illustrious historian, William Roscoe. We had those societies as our models, and we formed our society very much on the basis on which they were established. It was resolved that the Society should be one for the study of natural science and polite letters. There was an inclination on the part of some to make it purely a scientific Society, but it was felt by many that this would naturally exclude a very large portion of our inhabitants, who from their position and business could scarcely devote much time to the pursuit of natural science alone, and it was therefore resolved to make the Society one of natural philosophy and literature. It was determined that the hall should be built, and as a matter of course considerable delay occurred in the commencement of the active scientific and literary operations of the Society. Whilst a beautifully classical hall, designed by Mr. Chantrell, was being built some considerable time elapsed. But some earnest members of the Society, not content to wait until the period of opening should arrive, formed themselves into a temporary association, and met either once a fortnight or once a month for the reading of papers and discussion on scientific and literary subjects. And I

am happy to remember that the association was conducted with so much spirit that the Philosophical and Literary Society may almost be said to have existed before the time when the hall was formally opened. That event took place in April, 1821. If we date the period of our existence from December, 1818, which was the preliminary meeting, or even from November, 1819, during which the temporary association was formed, then we have completed the jubilee year of our existence, but if on the other hand we take from the 6th April, 1821, when the hall and the Society were formally commenced, then we are just entering upon the jubilee year of our existence. You will, I am sure, feel what a severe temptation presses upon me to mention the names of a great number of distinguished townsmen to have belonged to this Society—many of whom have left memories of the most endearing kind—and you will also see that whilst I am thus tempted to mention, or at least to make a selection of those who benefitted us by their talents, by their money, who became our presidents and officers, who acted as our curators and read papers to us, it really would be an impossible, or at all events an unsuitable thing, to place names on a list from which so many must be omitted. You must pardon me if I make a very small and sparing selection of names, only mentioning those it would be impossible to leave unnoticed in passing by rapid strides over a period of no less than fifty years. Our first president was Mr. Marshall, and our inaugural address was, after a competition, given into the hands of Mr. Charles T. Thackrah. Mr. West and Mr. George gave jointly the first course of scientific lectures that was delivered in the institution; and I cannot mention these two gentlemen without paying my tribute of high respect to their characters, and pointing them out as having been associated for a great number of years in most honourable pursuits. In the second session of our Society we had a somewhat remarkable event in a lecture delivered by Mr. William Smith, who is sometimes called the father of practical geology. He brought his geological map of England and put it up in our hall, and gave us a lecture on the strata of the whole geology of England. It was one of the most interesting lectures to which I ever listened. I must now go on to tell you of a few distinguished men to whom I have listened in connection with this Society. I can barely mention three or four names in connection with each of the grand departments of the Society. I may tell you that we had lectures on science from one of the most eminent scientific men in England, John Dalton; from one of its ablest geologists, Sedgwick; and from Professor Phillips. Then I take a long leap and come down to a time when we have listened to the voice of Professor Owen, Sir John Herschel, and Professor Huxley; but in the interval there were a great number of other distinguished men, whom, if time permitted, I could make a selection amongst, which it would be exceedingly interesting to you to have recalled to your memory. Then we had a crowd of papers in every branch of literature—from Professors in our Universities, from distinguished authors, from great travellers, from men in the public service of their country, besides a great number of distinguished men in our own town who made literature their study. I can only give simple names here under the literary department as in the scientific department. There was James Montgomery, the poet; Dr. Whewell, Master of Trinity; Sir H. Rawlinson, Sir John Bowring, and Gilbert Scott. Here, again, I leave a vast space

untouched—a period filled up by a series of names worthy to adorn any society of this nature—men whose papers read before the Society. I myself remember with the utmost satisfaction. I dare not mention our local worthies. There are amongst them those who have been authors, those who were eloquent men, men of profound science, and very learned men—but I dare not begin the list, as I could not mention one-fourth, or even one-tenth, of those entitled to be mentioned, and the omission of some in such a multitude might give dissatisfaction and pain. I cannot help expressing on this occasion what I have often felt, and that is the extremely important debt of obligation that we have always owed from first to last to the gentlemen of the medical and surgical profession, from that eminent surgeon, Mr. Hey, who, as I have stated, occupied the chair at our first meeting, down to my friend, Dr. Heaton, the present President, and all those other gentlemen here who have been accustomed for years to attend the meetings of this Society, to whom to a vast extent we are indebted not so much for strictly scientific lectures, still less professional lectures—those are given elsewhere—but also for valuable contributions of a literary kind which have been listened to in that hall. I must be permitted just to allude to an important feature of the Philosophical Society. From the first it was intended there should be in connection with it a museum of natural history and illustrative of natural science. From the first we obtained the assistance of an able curator, the late Mr. John Atkinson, of Park-square. He has been succeeded by a series of men eminent in natural history and in every branch of science; and we have now had the pleasure, and happiness, and advantage of having, as assistant curator, for 44 years my respected and valued friend, Mr. Henry Denny whom I may call not only a zealous, not only an indefatigable, but an irrepressible curator. By his incessant vigilance and diligence, and by the self-control by which he has forced himself to make application to anybody who had anything to give to us, he has been the means of bringing together a museum which, I believe, in richness and extent has very few equals out of the metropolis, and I must not omit to mention that by many of our friends—some now living, others passed away—he was supported with an amount of liberality which seemed almost to know no stint when he set before them any object which it was highly desirable for the Society to secure. Now, I do not think you would wish me to omit another name. There was a time in the history of this Society when it had fallen into a state of deep depression. I am not sure whether the prosperity of the Mechanics' Institution and the crowd of other institutions which have arisen since the Society was founded had not something to do with this state of depression. At that time we had a good friend and a good gentleman for secretary, Mr. O'Callaghan. He is no longer with us, and is not able to be with us to-day, an absence which he regrets; but it is satisfactory to know that he his still labouring in the same vocation as he was here, filling, as he does the office of president of a similar society at Leamington. By the great skill and enterprise of Mr. O'Callaghan, the society was raised from that state of depression into which it had sunk into a state of prosperity and active existence, which, I am happy to say, it has maintained up to the present time. You are aware that our rule has been to combine in the cultivation of science the services of eminent scientific and literary men from a distance with those of our own townsmen, whose talents and acquirements were thus drawn out by their exercise for the benefit of

the community of which they formed a part. That is a combination, I trust, which will always continue. During the secretaryship of Mr. O'Callaghan, and during the presidency of my much lamented friend, Mr. Teale, a very much needed enlargement of the building of the Society took place. There had been previously an enlargement of the original building, and on the second work of enlargement and improvement no less than £11,000 was expended; and finally your buildings—I mention it for the satisfaction of the proprietary members—has cost no less a sum than £26,000. I believe, if I estimated the pecuniary value of the museum, I must put it at least at five figures, I am sure I could not say less than £10,000; but estimated with regard to its value to the Members and to Leeds and Yorkshire generally, it must be beyond any sum I can name. Some changes have taken place. Amongst them the terms of subscription have been lowered, and the admission to the museum has been fixed at the low price of one penny, a sum which Sir Rowland Hill said would command any amount of patronage which it was in the power of England to bestow. I have no doubt it is much frequented, and is doing a great amount of good. I have now to appeal not only to the Members of this Society, but to the whole of my fellow-townsmen who know anything of the history of this Society, whether it has not proved one of the most valuable institutions, as it was one of the earliest institutions, that was ever formed in the country? It is proved to have effected every purpose to which we looked forward at the time it was formed, and it has in addition answered many more ends than at the time we venture to offer. It has promoted the intellectual development of the inhabitants; it has promoted their enlarged knowledge and refined taste; it has stimulaled the studies of the young; it has led many men to devote themselves to the pursuit of science and art and literature, who otherwise might have devoted themselves to less elevating pursuits; it has allayed party and sectarian prejudices, it has promoted social harmony; it has contributed to promote the education of all classes; it has proved a parent institution, having a large offspring of institutions of a similar kind though not of the same name; it has contributed to the improvement, to the embellishment, to the prosperity of the town of Leeds; and I conscientiously believe that it has borne a fair share and proportion in the mighty advance of science and art and literature which has taken place in this and in other countries. It was six years after the formation of the Philosophical Society that the Mechanics' Institute was formed, and it was the parent of a crowd of other institutions. Those gentlemen who were most active in forming the Philosophical Society were also amongst the promoters of the Mechanics' Institution; and those lecturers, some of whom I have named, who lectured in the Philosophical Hall were amongst the first persons to lecture to the newly-formed Mechanics' Institute, intended for a still more popular object and to embrace the widest sphere that could be furnished by our whole population. I might enlarge very much upon the benefits which have been conferred upon the town indirectly by the establishment of this society; but I feel is I did so I should trespass unduly upon your time. I feel I have done my part in presenting to you this rapid sketch of the early history of the institution. And now I must connect the toast which I have to give with the name of a gentleman who will be able to tell us much as to the present position and future prospects of the Society. I mean my friend, Dr. Heaton, the President. In a bold and enterprising spirit he has done

much to provide for the scientific and literary wants of the population. He has given himself to the promotion of knowledge in all its forms amongst all classes of society. I need not dwell upon what he has done for this society. You will all know better than I can, because you have closer opportunities of observing it. I can only say that I trust the same spirit which he has exhibited may continue to actuate the presidents and council of this Society, and that you may continue to be, not only for years but for generations yet to come, one of the highest sources of improvement and of advantage which this town has ever known.

Dr. Heaton, in reply, glanced over the history of his own connection with the Society. He said that in 1845 his name first appeared in the council of the Society, and for a quarter of a century—just half the life of the Society—he had been a member of the managing body. In 1854 the council received the valuable bequest of ancient coins, of the late Mr. Baron, of Drewton Manor, together with a collection of very valuable and antiquarian books. Till then, the library of the Society had consisted of a small collection of books, crowded promiscuously on a few shelves in the then scanty council room; but this bequest made the book collection assume some importance. He then suggested to the council that they should add to their staff of officers an honorary librarian. The council recommended that this duty should be entrusted to him, and in the report of 1857 this addition to the staff first appeared. From that time he had held the office, and in the interim their library had acquired a handsome room for its reception. It had been increased to the number of 2,500 volumes, including standard works in every department of science, carefully arranged, classified, and catalogued. In 1865 he became one of their Vice-presidents, and two years ago they elected him as President. No one could lightly undertake the duty of presiding over a Society which had for fifty years held such a position as that one, and which included in its body 600 of the most cultivated and influential of the inhabitants of Leeds, and whose chair had been occupied by such men as Marshall—father and son—Sadler, Hey, Dr. Hamilton, Dr. Williamson, John Hope Shaw, Sinclair, West, Wicksteed, Dr. Hook, Dr. Barry, Teale, Hincks, and Dr. Chadwick. That he had not altogether failed, he had the pleasure to take their kindness to him that evening as an evidence, and it was to be attributed not solely to his own efforts, but to the kind co-operation of his colleagues in the council with whom he had always worked with the greatest harmony and with one common aim—namely, to promote the interests of the society. When he held a subordinate office he did what he could to aid this good cause, and when he resigned the presidential chair it was not likely that he should throw aside his interest or his endeavours in the same behalf. A description of the steps which have been taken from time to time to give enlarged scope to the operations of the Society was then given by Dr. Heaton. The first building was comparatively small and simple; it formed the nucleus of our present more noble and spacious Hall, its walls being incorporated in the existing structure. The foundation stone, laid by Benjamin Gott, is still embedded in its south-eastern corner. Twice, at least, since then, has the building been enlarged. The most important extension took place within the recollection of all present, when, upon additional ground having an area nearly equal to that of the original building, our Library, Lecture Hall, and large Mammalian Room, were erected; while both the interior and

exterior of the original building were remodelled, and adapted to the new additions. Our building, as it now stands, was opened by an inaugural lecture by Professor Owen, in December of 1862; and few who traversed the spacious and partially vacant rooms, as they then appeared during the conversazione held the same evening, under the presidentship of the late Mr. Teale, could have imagined that, in less than eight years, the additions to our collections would have been so numerous that, ere long further provision for our extension might come under consideration. Recently, when there appeared an opportunity of securing a building adjoining their hall to provide for future extension, £5,000 was subscribed on paper by a few of the members to make a provisional purchase of the estate, and thus prevent its alienation. Unfortunately the events in relation to the estate had so turned out that they were unable to carry out this intention; but the generous and ready mind was tested and answered to the test, and he had every reason to believe that, whenever the need was urgently upon them, the necessary provision would then somehow be made. He had been much struck in looking over the Reports of former years, to notice how habitually, when some necessity arose—either the enlargement of our building, or the acquisition of some important specimen—our generous friends have supplied us with the necessary means. He ought to take the opportunity to inform the members that their old friend the Rev. J. Armitage Rhodes—one of the surviving original members had sent him a cheque for his subscription (£100) to be used at the discretion of the council. He intended to ask permission to apply part of this money towards some improvements in connection with the library that were now urgently needed. The Antiquarian department had now attained an importance deserving some other place than the vestibule for its collection, and the Industrial Museum formed a new feature and one that was attracting much attention. Whether the intentions of the founders of the Society were limited to the advantages to be conferred on its own members, it was certain that the extent and importance of its possessions, and its influence and opportunities for doing good, imposed upon it claims and responsibilities of a much more extensive character, which the society has not failed to recognize. The opening of the Museum to the public at the nominal charge of one penny, many years ago, laid the treasures of the Museum open to the inspection and study of all, and the admission of not much less than 50,000 visitors in 1868 attested the success of the experiment That was no doubt an exceptional year, owing to the attraction of the Art Treasures Exhibition, but the numbers who visited the Museum were still very large. In many the first seeds of the love of nature had been sown by its inspection, many had gone distinctly for the purpose of study and investigation, and to all such the collection had been a great public benefit. Dr. Heaton next directed attention to the course of nine lectures, given at his own suggestion, by men of the first eminence in the theory and practice of art, in elucidation of the Art Treasures Exhibition at the New Infirmary; and then said that more recently the Council had very seriously considered the duty of endeavouring to apply the means the Society possessed for promoting the scientific education of the people, hitherto so lamentably deficient. During the past session twelve lectures on geology, with this object, had been delivered by Mr. Louis C. Miall, of Bradford, with an average attendance of one hundred persons. He trusted that such lectures would be continued,

and that the society would be the means of disseminating taste, and fostering the study of science far beyond the limits of its own list of members. The Society was truly a public institution, endeavouring more and more to promote the public welfare. As such they were entitled to the confidence and support of the public; and whoever contributed money or valuables, contributed, not to its members, but for the promotion of the public good of which they were only the trustees. In a country like this such a Society was especially valuable and necessary, even in a utilitarian point of view; but there was a benefit that was higher and nobler than this. The true philosopher believed that there was a good in the acquisition of knowledge for its own sake, and often the mere utilitarian would lose the very object for which alone he sought, whilst the discoveries of the man of science proved applicable to universal benefit. Thus whilst they cultivated philosophy and science for their own sakes, and for the elevating influences which they exercised upon their minds, they were sure also to be rewarded by results of practical benefit to our race. After a reference to the four previous occasions on which the members of the Society had dined together, Dr. Heaton concluded by expressing a hope that, when the next jubilee was celebrated, the Society would be able to look back upon the fifty years gone by with as much satisfaction as they experienced on that occasion, and to see as much substantial progress and real good done as they did that day. Before resuming his seat he proposed "Our National Universities," and coupled with the toast the names of Canon Woodford and the Rev. J. H. McCheane.

Canon Woodford, in responding for the University of Cambridge, said that in speaking to such a toast one had the past as well as the future to consider. The past of the universities extended to a period of something very near a thousand years if, as according to the best authorities, we may place the beginning of the University of Oxford in the ninth century, and the beginning of the University of Cambridge in the eleventh century. He supposed, as far as numbers went, the universities were at their highest pitch at the middle of the thirteenth century; for, extraordinary as the figures might seem, the latest criticism accepted the statement that there was at the time at Oxford a University population of 30,000. The main authority for that was, he believed a certain Richard of Armagh, who, in a report to the resident Pope at Avignon, stated that when he was a resident undergraduate at Oxford there was that number of students. The absolute number of students was 15,000, and the remaining 15,000 were made up by the attendants and the population; but even with that it was evident that the universities of the country must then have drawn an enormous proportion of the inhabitants within their circle. They appeared however, speedily to have declined from that high path. A little before the Reformation the number of students came to something like 3,000, and a little after the Reformation the universities were found struggling with something like 5,000. Many reasons had been suggested as to the cause of that very great diminution. The probable reason he supposed, was one or other or all of these. First, the utter confusion of the country during the Wars of the Roses; another, the crushing out of the spirit of inquiry by the entire suppression at Oxford of the Wyckliffe movement; and, perhaps, most of all that general lull which, he thought, if we looked back into the records of history, we should find so often preceded a great movement. It appeared

as if one generation or two or three generations, worked out, under God's providence, some great social problem; and that there ensued a period of torpor—a period during which the mental and physical powers of the community were, as it were, withheld, whilst those mental and physical powers were girding themselves up for another great movement. And so, possibly, it was that that great falling-off in the amount of intellectual advance in England during the period he spoke of was really the lull during which the nation was gathering up its strength for the great movement of the sixteenth century—the movement of the Reformation. Since the period of the Reformation the Universities had contracted their operations within a narrower channel, and he presumed one of the main causes of that had been the circumstance to which we owed very great results for good—he meant the collegiate system. The collegiate system sprang up and grew to a head at the very time that the great mass of students resided in the University, and perhaps the growth of the collegiate system had a great deal to do with diminishing the numbers embraced by the University. One reason why they would do so was obvious. With the rise of the colleges began immediately a very great increase of the strictness of discipline. Students then being gathered within their walls found themselves under very much closer restraint, and very much severer discipline than formerly; and so we could conceive that immediately a very great number who did not go there with any very definite purpose fell away. But what he wanted to say was that though there was certainly a great decline in the national importance of the Universities after the 13th century, yet even during the lowest period the Universities had borne a very great part in the progress of the national life. It was impossible to go through the names of those who had distinguished themselves there—distinguished themselves and the nation at large after they had left these Universities. But just think how in every department the foremost names had traced their original greatness to one of the Universities of Oxford or Cambridge. Take, amongst the poets, Spenser, and Milton, and Gray. Take amongst historians, Gibbon. Take, amongst philosophers, Bacon, and Newton, and Butler. He said nothing of theologians; and he would not say a word which might mar the harmony of the meeting by even raising up a shadow of difference of opinion. But let them go to politicians. They might surely do so; and he could not help thinking that it must ever be a very great crown upon the heads of the Universities that members of Oxford and Cambridge had been the three great statesmen of modern times—Pitt, Peel, and Gladstone. Then, if we passed to the future—and here, again, he was very anxious not to stray into any vexed question—but he did not think there was much from which we might augur a future of at least equal renown. There were two great movements which, though originating in our own time, did seem to him to promise that they were great movements. They first was—and it connected itself remarkably with what he had said—the increasing clearness with which the difference between the university and the college was now coming out before the national mind. He supposed our fathers and grandfathers had no idea of a university unconnected with the collegiate system. To go to the university was to go to college. We were now beginning to see that the college system was an entirely independent growth within the university; and we were beginning now in our legislation—both national and university legislation—to recognise that there is a district line of demarkation between the

university and a college; and he thought that the fact that the university had asserted its position as independent of the colleges, and was now in the act of receiving students whose names were not upon any college books, was a going back to that very position which, as he had said, in the middle of the thirteenth century gathered together such an enormous portion of the population within the university walls. Another point to which he wished to allude was the effort which the Universities had made to take the lead in the general education of the country by promoting local examinations. He believed the effect of this would be beyond what could now be conceived. Its effect would be very direct in linking the affections of thousands instead of hundreds with the universities—in making them the *almi matres* not of hundreds but of thousands. It would also have the enormous effect of doing away with quackery in education—in securing that whatever education was given—at whatever point it stopped—up to that point it should at any rate be sound. There was only one word more that he would add. Apart from the learning of the university there was what he might call the *ethos* of the university. The remarks he had already made would, he thought, show clearly that he certainly was not one of those who would stop the progress of reform; but he was most anxious that in reform we should not take any step which would destroy that *ethos* of the universities which really up to this point had given them so much value. He believed we should buy dearly their enlargement, if, by enlarging, we dissolved and scattered and dispersed that peculiar atmosphere which had hitherto hung about them, and which had had so very great an effect in moulding that almost noblest type of humanity, the English gentleman. But steering clear of such alterations, he believed there was opportunity for very great reform still. He believed that the Universities were quite willing to set their feet upon the path of enlightened and cautious reform and he augured for them from that and the general aspect of the time, a future as renowned as the past, and that they might be for ages to come the home of the philosophies of posterity as they had been the home of the learning of our forefathers.

The Rev. Mr. McCheane replied for the University of Oxford.

The Rev. Chas. Wicksteed next proposed, "The health of the founders present." Although he had not the privilege of taking part in the formation of the Society, thirty-five years ago he was elected a member of the council, and for eighteen years he took a very active part in its affairs and filled some of its not least important offices. He was, therefore, able to speak to some extent of its effects, and it was his belief that the Society had been, in the best sense of the word, a blessing to the community. It had formed the rallying point for all the literary and scientific taste of the town, and had greatly stimulated native talent. As to its presidents, his heart and memory now recalled such men as John Hope Shaw, Richard Winter Hamilton, and Sinclair. Of the founders of the Society present, he called attention to the names of Mr. Clapham, that venerable gentleman, who at eighty-three years of age had come amongst them, Mr. Baines, and Mr. Hey. It was a most encouraging and delightful thing for two young men like what Mr. Baines and Mr. Hey were, to come forward to do their best to benefit the community in which God had placed them; and he thought that they owed them a debt of gratitude for the noble example they had set to young men.

The CHAIRMAN, having briefly acknowledged the toast, was followed by Mr. HEY, who, although he could scarcely claim the honour of being one of the founders of the Society, had still been a member of the committee from its commencement, and he had great satisfaction in witnessing its development. He thought that its great success might be mainly attributed to its presidents. He was, therefore, glad to propose the health of the Rev. C. Wicksteed and Dr. Chadwick, two of the past presidents.

Dr. CHADWICK, replying, said that he had the highest veneration for the Society. From his own experience of more than thirty years, he knew that it was capable of doing much good, that it had fulfilled its object, and that it was worthy of all that could be said of it.

Sir ANDREW FAIRBAIRN, proposed the next toast, "The Mayor, Corporation, and Magistrates of Leeds." Every year brought additional duties to the Corporation and the Magistrates; it might be said, with regard to the Magistrates, that, having now got a stipendiary who did all the work, they had nothing to do. There was, however, a moral responsibility which would always rest upon any person who was entrusted with high position in a large town like this, and they might depend upon it that in the course of a few years the position of the magistrates of the borough of Leeds would be far more important than what it was ten years ago, and that not only would the Mayor and Corporation have more work to do but the Magistrates also.

Mr. Alderman OXLEY, whose name (in the absence of the Mayor, who had been called off to London) had been coupled with the toast, briefly replied.

Mr. F. BAINES next gave "Success to the other Philosophical and Literary Societies."

Dr. KING, the President of the Hull Philosophical Society, responding, said that the Hull Society was three years younger than that of Leeds, and that, although it had only 400 members, it was, like the societies of Bradford and Halifax (whose Presidents had been compelled to leave the meeting), doing an immense amount of good work.

Mr. J. W. TOTTIE proposed "Applied science and the industrial arts of Leeds."

Mr. Alderman GEORGE, in acknowledging the toast, spoke of the encouragement given by the Society to inquiries connected with the industries of Leeds, referred to the rapid growth and great extent of some of the trades now carried on, and made allusion to the increase in the size and importance of the borough. In looking back to its history, he thought that there were few towns in the country that stood higher scientifically, politically, industrially, or commercially than Leeds.

Mr. Wm. BROWN proposed the health of Mr. Baines, M P., and the Chairman having acknowledged the compliment,

Dr. CHADWICK, gave the last toast on the official list—"The health of Mr. H. Denny." He spoke of Mr. Denny as being a thorough naturalist, to whom, from having made his work a labour of love, the Society owed much of its success. Mr. Denny had served them assiduously for forty-four years, and he thought the time was coming when those services should be recog-

nised in some substantial manner. Although last on the list, he thought this toast was perhaps the most important so far as the welfare and position of the Society was concerned.

Mr. Denny replying, said that it had always been his ambition to make the museum the pride of the town and of the county, and the envy of all other museums in the kingdom. Although he had not the same strength that he had forty-four years ago, he should still continue to forward the interests of the institution to the utmost of his power.

The health of Mr. Ikin and the members of the dinner committee was next proposed by Dr. Heaton, and was duly acknowledged.

DONATIONS AND ADDITIONS

TO THE

SOCIETY'S MUSEUM.

Those marked thus (*) are Honorary Members; thus (†) Members of Society.

GEOLOGY AND MINERALOGY.

Very fine Tooth of a Species of Shark, from the Phosphate Beds of Charlestown, U.S.	Mr. Cowlam Gravely, Charlestown, U.S.
A valuable Series of Fossils, from the Mountain Limestone of Skipton	Messrs. J. G. Marshall and Arthur Marshall.
A Series of Fossils, from the Mountain Limestone of Lampton, Ontario, Canada	Mr. A. M. Watson, Widden Station, Ontario.
Very fine Molar Tooth of Elephas Primigenius, from Filey	Mr. E. Tindall.
Portion of the Tusk of Elephas Primigenius, from the Drift at Filey	†Mr. John Holmes.
Specimen of Acmite, from Norway ...	†Mr. R. Reynolds.
Two interesting Fragments of Jaws, of Hyæna Spelæa, from Brixham Cavern	†Mr. J. Manning.
Sand and wind worn Stones found in the Peninsula, between Lyells and Evans Bay, Wellington, New Zealand ...	Dr. Hector, F.R.S., Wellington.
An Elyton of a Buprestis in Stonesfield Slate, from Naunton, near Stowe on the Wold	Rev. W. F. Adey.
Two very fine Specimens of Pecten, from the Lias, at Claxby, Lincolnshire ..	Mr. Joseph Wilkinson.
Block of Coal, from Allerton Main Colliery, containing impressions of Knorria ...	Mr. Bell.
Magnesian Limestone, from Sherburn, containing Specimens of Anthacosia ...	Mr. John Dixon.

Several teeth of Ursus Spæleus, from the Caves at Sophierhole, Bavaria, in 1841	†Mr. James Farrar, J.P., Ingleborough House.
Specimens of Scoria, from the Great Crater of Kilauea, in Hawaii	Rev. C. G. Williamson, Hawaii.
Two fine specimens of Belemnite, from the Lias, at Sleaford, in Lincolnshire ...	Mr. J. Green.

ZOOLOGY.

Skeleton of the Apteryx (Apteryx, Australis)	†Dr. Heaton, (President.)
A Specimen of the Marmosette	Mr. T. Clapham.
Skeleton of the Little Ant Eater (Cyclothurus Didactylus)	†Mr. Thomas Nussey.
Specimen of the Portuguese Man of War. and Skeleton (the Rock Snake of India) Python Mollurus	Purchased by the Society.
Fine Skeletons of the Capabara (Hydrochærus Capabara) and the Snapping Turtle (Macrolemmys Temminkii) ...	†Mr. Riley Briggs.
Specimens of the Trap-door Spider, from Jamaica	Mrs. J. W. Clark, South Paths, Jamaica.
Fine Specimens of the Kakapo or Ground Parrot (Stigops habroptilus); Owen's Apteryx (Apteryx Owenii), from Preservation Islet, New Zealand, and Skeleton of the Douroucouli (Nyctipithecus Trivirgatus)	†Mr. John Metcalfe Smith.
Specimen of the Spotted Cuscus (Cuscus Maculatus); Elephant Shrew (Macroscelides intufi; Demidoffs Hemigallego (Hemigallego Demidoffii)	Purchased by the Society.
Young Specimen of the Monkey Shark Jaws of a Species of Ray and Skin of the Angel Fish	Capt. Lapage, R.N.
Specimen of Callamoichthys Calabaricus, a rare ganoid fish, from Western Africa	Purchased by the Society.
Five Specimens, adult and young of the Chinese King Crab, (Ximulus longispini)	Mr. F. Armistead, Hong Kong.
Specimens of the Banded Tanrec (Centetes Madagascarensis) common Tanrec (Centetes ecaudatus) and Ericulus nigrescens	Purchased by the Society.
Fine Skull of Bairds Tapir (Elasmognathus Bairdii), from Central America ...	†Mr. R. M. Carter, M.P.

Twenty Skins of Birds from New Zealand, consisting of Circus assimilis Halcyon vagrans; pair of Zosterops, lateralis, Platycercus pacificus, Apteryx Owenii Sphenæacus Punctatus; pair of Charadrius obscurus; pair of Hiaticula cincta Hæmatopus longirostris, Ardea flavirostris, Himantopus novæ Zelandica; pair of Porphyrio melanotus; pair of Sterna frontalis Podiceps rufipectus, Larus antipodum	Mr. G. H. Moore, Canterbury, New Zealand.
Specimen of the Hairy Nosed Wombat (Phascolomys latifrons)	†Mr. Joseph Craven.
Skeleton of the Edible Rousette (Pteropus rubricollis)	Obtained by Exchange.
Specimen of the Red-naped Kalong, from Australia (Pteropus funereus) ..	Mr. Crosthwaite, Victoria.
Specimens of the Rosy Feather-Star (Comatula rosacea)	Mr. Louis C. Miall.
Specimen of the Royston Crow (Corvus Cornix)	Mr. Todd.
Horn of Rhinoceros Oswellii, Pair of the King Bird of Paradise, fine Specimens of Dendrophyllum ramea, and of Manis Tricuspis	Purchased by the Society.
Fine Specimen of the Racoon Dog (Nyctereutes procynoides)	Lord F. C. Cavendish, M.P.
A valuable Collection of Bones of the Moa gigantea, Elephantopus, &c., from Canterbury, New Zealand	Mr. G. H. Moore, Canterbury, New Zealand.
Bones of a Species of Moa, from Wellington, New Zealand	Dr. Hector, F.R.S., Wellington, New Zealand.
Fine Skull of an Adult Tenrec (Centetes ecaudatus)	Mr. E. Gerrard, London.
Specimen of an Abyssinian Squirrel ...	Mr. G. W. Brown, Weetwood.
Specimen of the Widdah Bird	Mr. H. P. Swaine.
Fine Skeletons of the Slender Loris (Loris gracilis) and the Ku Kang (Nycticebus Javanicus)	†Mr. Gustave Nathan.
Bones of the Solitaire from Rodriguez ...	Professor Newton, F.R.S., Cambridge.
Skeleton of the Tanrec (Centetes ecaudatus)	†Mr. J. I. Ikin.
Very fine and perfect Stuffed Specimen and Skeleton of the Picheciego (Chlamydophorus truncatus), from Mendosa in the Argentine Republic ...	Mr. E. Harry Woods. and Dr. Day.

Six Specimens of the Tasmanian Wolf (Paracyon cynocephalus eight fœtal Specimens and five Skulls of do.; two Female Specimens of the Tasmanian Devil (Diabolus ursinus) two fœtal specimens and three skulls of do.; one Kangaroo Rat (Bettongia Grayii); one Beaver Rat (Hydromys chrysogaster) Platypus (Ornithorhynchus paradoxus) Dasyurus viverrinus and maculatus; Skull of mature and fœtal Wombat and fœtal Specimen of Wallaby.	*Mr. W. H. Gellibrand, Tasmania.

ARCHÆOLOGY, ETHNOLOGY, and MISCELLANEOUS.

Two Human Skulls, from the Sandwich Islands	Rev. C. G. Williamson, Hawaii.
Nine Human Skulls, consisting of two Saxon Skulls, from Dorsetshire Barrows; one Chinese, five African one from a Turkish Sepulchre and a Sepulchral Urn, from a Barrow in Wiltshire	Sir Charles Lowther, Bart., Swillington House.
A valuable Collection of eighty Bronze, Silver, and Gold Implements and Objects from Ireland and Italy, consisting of Palstaves, Celts, Daggers, Spear Heads, Swords, Fibulæ, Torques, Armlets, Bells, Spurs, Horse Bit, Strigil, Broach Stone Implements, Arrow Head, &c....	Purchased by Subscription by †James Farrer, †Francis Lupton, †R. J. Hudson, Robert Jones, John Jowitt, †F. W. Tetley, †W. H. Conyers, †Edward Irwin, †W. S. Jackson, †Sir C. Lowther, Bart., †J. W. Naylor, †R. Wood, †H. Ludolf, †William Aldam, †Thomas Whiteley, †W. E. Marshall, †Joshua Buckton, †Thomas Hall, †F. W. Kitson, †James Kitson, †Walker Joy, †R. E. Payne, †T. A. Tetley, †Thomas Walker, †John Barran.
Flint and Stone Implements and Flakes, from Lough Gur and Denmark ...	Purchased by the Society.
Primitive looking Pottery, made at Barves, in the Isle of Lewes, Hebrides, and used at the present time ... ... —	Mr. Lawson Tait, Wakefield.
Chert Flakes, found with the bones of the Moa in Native Cooking Ovens at Tre Gully in the interior of Otago and Aboriginal Stone and jade Adzes, from New Zealand	Dr. Hector, F.R.S., Wellington, New Zealand.
Casts from Human Skulls and Bones found in the Caves at Cro-Magnon, France ...	Presented by Professor Quatrefages, Paris.

A valuable Collection of Native Productions, &c., from the Sandwich Islands, consisting of Mats, Cloth, Nets and Cordage, Native Drum, various Wooden Bowls, Gourd Plate, Spittoon, Fish and Meat Dish, Stone Roller, Stone Poi Beater, Native Rings, Ornaments, Broom of Cocoa-nut Leaf Ribs, Wooden Cloth Beater, Cocoa-nut Spoons, Feather Brush, Maiden Hair, Stems used to make Plait for Hats, &c.	Rev. C. G. Williamson, Hawaii.
Sword found on the Field of Marston Moor about 120 years since	*Mr. H. Denny.
Skelton of Shermoi an Acawoi Indian, found on the banks of the Essequibo river; Indian Necklace formed of Shells; a Collection of Insects; Skulls of the Peccary; and Spotted Cavy; Skeletons of the three toed Sloth; and of the Caiman; Skins of the Red and Yellow rumped Orioles and Blue Creeper; a variety of Fruits and Seeds and Woods and native Grass	Rev. James Farrar, Chaplain to the Penal Settlement, British Guiana.
A Bellarmine or long-beard Jug, date 1672, found in pulling down an old barn attached to the Old Manor House called Point Hall, near Morley, 1868...	Mr. Samuel Arundell.
A very perfect pair of Quern Stones, found near Ripley	Mr. J. H. Ridsdale.
Pair of Shoes, from Norway	†Mr. Edward Atkinson.
An extensive Series of rudely worked Flint, Implements, from the neighbourhood of Bridlington	Mr. J. Ffooks.
Cast of the Great Seal of Oliver Cromwell	Purchased by the Society.
Remains of a Human Skeleton and pair of Ancient Shoes (probably Roman), found in Peat, at Austwick, in June, 1846; Roman Unguentary, Bronze Spear Head found in Peat on Thorne's Close, 1846, Ancient Steel Yard, found in taking down an old stone wall in Clapham, 1848; Roman Coins, found in London, 1844	Mr. James Farrar, J.P., Ingleborough House.
A Chinese Creese...	Miss Sharp.
Sword and Scabbard, from Abyssinia ...	Capt. Lapage, R.N.
Shoes of the Polish Dwarf, Count Borawlaski and General Tom Thumb ...	Mr. Wm. Trant.
Specimens of the Fruit of the Nutmeg, from Jamaica	†Mr. Thomas Harvey.
A Series of Crucibles, Assay Pots, Mufflers, Retorts and Specimens of manufactured Plumbago	The Battersea Patent Plumbago Crucible Company, London.

LIBRARY.

On Fish Poisons and Poisonous Fishes, by the Honourable R. Hill; from the Scientific Association of Trinidad ...	The Author.

CATALOGUES OF THE BRITISH MUSEUM.

Catalogue of the Bones of Mammalia, 8vo.	The Trustees of the British Museum.
Catalogue of Amphipodous Crustacea ...	
Catalogue of Seals and Whales	
Catalogue of Carnivorous Pachydermes and Edentate Mammalia, 8vo.	
Catalogue Acanthopterygian Fishes, vol. 4	
Catalogue of Fishes, vol. 5, 6. 7, 8vo. ...	
Catalogue of British Non Parasitic Worms	
Catalogue of Coleopterous Insects of the Canaries, 8vo.	
Catalogue of the Blattanæ, 8vo.	
Catalogue of Hemiptera Heteroptera, vols. 1, 2, 3	
Catalogue of Diurnal Lepidoptera Fam Satyridæ	
Catalogue of Lepidopterous Insects, parts 25 to 30, 12mo.	
Catalogue of Mollusca, part 11, Olividæ...	
Catalogue of Birds (Capitonidœ and Picidæ)	
Catalogue of Mammals and Birds of Nepal	
Specimen Catalogue of Lycænidæ, 4to ...	
Catalogue of Vases in the British Museum, 8vo., 1851	
Nummi Veteres, Civitatum Regum Gentium, et Provinciarium Londini in Museo Richardi Payne Knight, Assenati, 4to, 1830	
Engravings of Ancient Marbles in the British Museum, 11 vols., 4to... ...	
Engravings from the Gallery of Antiquities in the British Museum, 1 vol., 4to. ...	
Description of theAnglo-gallic Coins in the British Museum, 4to., 1826	
Description of the Greek Papyri in the British Museum, part 1, 4to.	
Select Papyri in the Hieratic Character, from the Collection of the British Museum, parts 1, 2, 3	
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Miss Fanny Passavant.
William Passavant.
Miss Pearson.
Mrs. H. W. Price.
Miss Pope.
R. Ramsbotham.
Mrs. G. Rayner.
Miss Gertrude Richardson.
Mrs. Rickards.
Mrs. J. Rider.
Mrs. Riley.
Mrs. Rickards.
Mrs. Robinson.
Miss Rooke.
Miss E. Rooke.
Miss Rowley.
Mrs. C. Ryder.
Mrs. Scattergood.
Miss Stables.
Miss Lucy Stables.
Ashley Stables.
Miss Stocker.
Mrs. Stocks.
Mrs. John Swaine.
Miss Swaine.
H. P. Swaine.
J. H. Swaine.
Miss Marion Swaine.
Miss Ann Sharpe.
Miss Georgiana Tatham.
Miss Elizabeth Tatham.
Mrs. S. Taylor.
Miss E. J. Taylor.
Miss Thackray.
Mrs. E. Thorne.
Mrs. J. H. Thorp.
Windsor Thorp.
Wm. Henry Thorp.
A. P. Titley.
Miss M. Tootal.
Mrs. Turner.
Mrs. Walley.
Mrs. Ward.
Miss Mary Ward.
Mrs. Wardle.
Mrs. W. Walker.
Mrs. C. G. Wheelhouse.
Mrs. Wheelhouse.
J. T. Whiteley.
Mrs. Whiteley.
Miss Whiteley.
Mrs. Whitehead.
Mrs. Harley Williams.
Mrs. J. J. Willson.

Mrs. F. Wood.
Miss Wood.
Miss Wright.

Zachariah Yewdall.
Mrs. Yewdall.
Miss Yewdall.

HONORARY MEMBERS.

Louis Agassiz, M.D., Professor of Comparative Anatomy, &c., *Cambridge, Massachusetts.*

Sir Rutherford Alcock, C.B., *China.*

Spencer F. Baird, M D., Smithsonian Institution, *Washington, United States.*

Rev. Alfred Barry, D.D., *King's College, London.*

Sir John Bowring, L.L.D., *Exeter.*

W. Boyne, F.S.A , *London.*

Signor Frederico Lancia di Brolo, *Palermo.*

Joseph Burland, *South Cave.*

Rev. Temple Chevallier, F.R.S., *Durham.*

The Right Hon. the Earl de Grey and Ripon, F.R.S., F.G.S., *Studley Royal, Ripon.*

P. O'Callaghan, D.C.L., Oxon., L.L.D., Dub.; F.S.A., &c., *Leamington.*

Lewis Llewelyn Dillwyn, M.P., F.L.S.. F.G.S., Hendrefoilan, *Swansea, Glamorganshire.*

Henry Denny, A.L.S., Corresponding Member of the Academy of Natural Sciences of Philadelphia; of the Syro-Egyptian Society of London; Honorary Member of the Philosophical Society of Dickinson College, Carlisle, Pennsylvania; of the Yorkshire Philosophical Society; the Blackmore Museum, Salisbury; and of the Norfolk and Norwich Museum, *Leeds.*

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The Right Hon. Earl Fitzwilliam, F.R.S., &c., *Wentworth Woodhouse, Rotherham.*

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George Lane Fox, *Bramham Park.*

Francis Galton, F.R.S., *London.*

Robert E. Grant, M.D., F.R.S., F.L.S., G.S., Z.S., W.S., &c., &c., Professor of Comparative Anatomy and Zoology in the University of London, *London.*

Cyril Graham, B.A., &c., *London.*

Rev. W. V. Vernon Harcourt, F.R.S., F.G.S., Vice-President of the Yorkshire Philosophical Society, *Nuneham Park, Oxford.*

Wm. Hartley, *D'Urban, Port Natal*

The Lord Bishop of Hereford *Palace, Hereford.*

Sir J. F. W. Herschel, Bart., K.H., D.C.L., F.R.S., &c., &c., &c., *Collingwood, Kent.*

The Hon. Richard Hill, Member of Her Majesty's Privy Council for Jamaica, Corresponding Member of the Zoological Society of London; *Spanish Town, Jamaica.*

Rev. Thos. Hincks, B.A., Charlemont, Taunton.

The Right Hon. Lord Londesborough, *Grimston Park, Tadcaster.*

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The Very Rev. Walter Farquhar Hook, D.D., F.R.S., Dean of Chichester, &c, *Chichester.*

James De Carle Sowerby, F.L.S., *Botanical Gardens Regent's Park, London.*

The Chevalier Michelotti, *Turin.*

Sir Charles Nicholson, Bart., D.C.L., &c., *London.*

Lawrence Oliphant, F.R.S., *London.*

Wm. Osburn, M.R.S., Lit., *Leeds.*

Richard Owen, M.D., D.C.L., L.L.D., F.R.S., Foreign Associate of the Institute of France, &c., *London.*

C. C. Oxley, *Redcar.*

Sir Harry Parkes, K.C.B., *Japan.*

John Phillips, M.A., L.L.D., F.R.S., F.G.S., &c., Reader in Geology in the University of Oxford, *Museum House, Oxford.*

Major-General Sir Henry Rawlinson, K.C.B., F.R.S., M.R.A.S *London.*

The Lord Bishop of Ripon, F.R.S., *The Palace, Ripon.*

George Gilbert Scott, F.S.A., R.A., *London.*

Rev. Adam Sedgwick, M.A., F.R.S., Woodwardian Professor of Geology in the University of Cambridge.

Gustave Seyffarth, A.M., D.D., Ph.D., Professor in the Concordia College, St. Louis, United States.

Rev. Wm. Sinclair, M.A., *Pulborough Rectory, Sussex.*

Capt. Edmond Smyth, *Elkington Hall, Louth, Lincolnshire.*

Col. Sykes, M.P., F.R.S., &c., *London.*

John Robert Tennant, *Kildwick Hall.*

The Venerable Archdeacon Trollope, M.A., F.S.A., *Leasingham, Lincoln.*

J. K. Walker, M.D., *Dean Head, Halifax.*

Thomas Wright, M.A., F.S.A., M.R.S.L., Member of the Institute of France; Corresponding Member of the Society of Antiquaries of Copenhagen; of the Society of Antiquaries of Scotland, &c., &c.; *Brompton.*

THE FIFTY-FIRST REPORT

OF

THE COUNCIL

OF THE

LEEDS

PHILOSOPHICAL & LITERARY

SOCIETY,

AT THE

CLOSE OF THE SESSION 1870-71.

Read at the Annual Meeting, May 2nd, 1871.

LEEDS:
PRINTED BY CHARLES GOODALL, 16, WOODHOUSE LANE.
MDCCCLXXI.

IMPORTANT RULE

RESPECTING THE PROPERTY OF THE SOCIETY.

PASSED OCTOBER 8TH, 1860.

That in the event of a dissolution of this Society, its Property and Effects, whether real or personal, shall not be disposed of for the personal benefit of the Members, but shall be appropriated in such manner for the advancement of Science, Literature, or Art, in the Town of Leeds, as shall be determined by a Majority of the Members at an extraordinary Meeting to be convened for that purpose. But that no dissolution of the Society shall take place without the consent, in writing, of a majority holding not less than two-thirds of the Proprietary Shares.

FORM OF A BEQUEST TO THE SOCIETY.

Every person desirous of bequeathing to the Society any Sum of Money, Specimens, Books, Instruments, or other Property, is requested to make use of the following Form:—

I give and bequeath to the Trustees for the time being of the Society established at Leeds, called "THE LEEDS PHILOSOPHICAL AND LITERARY SOCIETY," *for the use of the said Society, the sum of* , *to be paid out of such part of my personal Estate as I may legally charge therewith.* [Or here enumerate the Effects or Property intended to be bequeathed.] *And I direct that the Receipt of the Treasurer of the said Society for the time being, shall be an effectual discharge to my Executors for the said Legacy.*

REPORT OF THE COUNCIL

AT THE CLOSE OF THE

FIFTY-FIRST SESSION.

The Council have again to announce that the position of the Society has been materially improved during the past year. 132 New Members and Subscribers have been added since the last Annual Meeting, whilst the losses from all causes amount to 45.

The Accounts, made up as usual to the 30th of June, will be printed with this Report, and will shew the financial position of the Society. It will be seen that there has been a greatly increased expenditure on Lectures, and if it be the wish of the Society to maintain the present high character of this department of our operations, a permanent increase of expenditure may certainly be contemplated. To meet this demand and at the same time to maintain the other branches of the institution in full efficiency, an alteration of the Rules will be submitted to this Meeting, by which it is proposed to increase the Subscription of Ladies and Junior Subscribers from 5s. to 7s. 6d. When it is recollected that this payment admits not only to the Lectures and Papers but also to the Museum and Conversazione, the Council feel sure that the alteration will be cheerfully adopted. The Council would further point out to their supporters how much they may contribute to the prosperity and efficiency of the Society by an active canvass among their friends for New Members and Subscribers.

The Council have again much pleasure in reporting a donation of £10 from T. Emsley, Esq., of Burley-in-Wharfedale. A list of many valuable donations to the Museum and Library is appended to this Report.

During the winter the following Papers have been read before the Society :—

TITLES OF PAPERS, &c.

1870.

First General Meeting, Tuesday, Oct. 18th.—William Hepworth Dixon, Esq., "The Great West: the Feeding Ground of the Anglo-Saxon Race."

Second General Meeting, Wednesday, Nov. 2nd.—Professor Seeley, M.A., Professor of Modern History in the University of Cambridge, "Schiller."

Third General Meeting, Tuesday, Nov. 15th.—William Carruthers, Esq., F.G.S., British Museum, "The Vegetation of the Coal period, and its relation to the plants of the present day."

Fourth General Meeting, Tuesday, Nov. 22nd.—R. A. Procter, Esq., B.A., F.R.A.S. First Lecture, "Saturn and its System, and the Lands and Seas of Mars."

Fifth General Meeting, Thursday, Nov. 24th.—Mr. Procter's Second Lecture, "Stars and Star Systems."

Special General Meeting, Tuesday, November 29th.—Professor Seeley's Second Lecture, "Goethe."

Sixth General Meeting, Tuesday, December 6th.—The Conversazione.

Seventh General Meeting, Tuesday, December 20th.—Rev. H. B. Tristram, M.A., LL.D., F.R.S., "The Story of Past Geological Ages, as told by the Living Forms of Palestine."

Eighth General Meeting, Friday, December 30th.—Professor Huxley, LL.D., F.R.S., President of the British Association, "On Yeast."

1871.

Ninth General Meeting, Tuesday, January 10th.—W. F. Barrett, Esq., F.C.S., Professor of Natural Philosophy at the International College, London. First Lecture, "Faraday's Electrical Discoveries."

Tenth General Meeting, Thursday, January 12th.—Mr. W. F. Barrett's Second Lecture, "Faraday's Electrical Discoveries."

Eleventh General Meeting, Tuesday, January 17th.—Anthony Trollope, Esq., "Prose Fiction as a Rational Amusement,"

Twelfth General Meeting, Wednesday, January 25th.—Professor Rev. Sir Frederick Gore Ouseley, Bart., M.A., Mus. D., Oxford. First Lecture, "History of Music," (vocally illustrated.)

Thirteenth General Meeting, Friday, January 27th.—Professor Ouseley's second Lecture, "Music, a Science as well as an Art."

Fourteenth General Meeting, Tuesday, February 7th.—Rev. Charles Wicksteed, B.A., "Recollections of Continental Travel a Generation ago."

Fifteenth General Meeting, Tuesday, February 21st.—Edward Burnett Tylor, Esq., V.P. of the Ethnological Society of London, "Primitive Civilization."

Sixteenth General Meeting, Tuesday, March 7th.—William Sykes Ward, Esq., F.C.S., "On Acoustics and Musical Instruments," with Illustrations.

Seventeenth General Meeting, Thursday, March 9th.—Mr. Sykes Ward's Second Lecture.

Eighteenth General Meeting, Tuesday, March 21st.—John Birkbeck Nevins, Esq., M.D., President of the Liverpool Philosophical Society, "On the Changes observed in Plants during the Ripening of Seeds."

Nineteenth General Meeting, Tuesday, April 4th.—James Glaisher, Esq., F.R.S., &c., "Rain, how derived, various forms under which it appears, how measured, its different amount in different places, monthly and annually, its importance in supplying towns with water."

Twentieth General Meeting, Tuesday, April 18th.—L. C. Miall, Esq., "Early History of Domestic Animals."

The Council believe that no previous Session has been marked by so many valuable and attractive Lectures. The interest displayed by the Members and Subscribers has been encouraging, and will doubtless stimulate the Council to renewed exertions in the future so as to maintain the present high character of the Lecture Card.

In the last Report it was announced that a course of Elementary Lectures on Geology had been delivered under the auspices of this Society to a mixed audience, composed

partly of Members and partly of strangers. The experiment has been repeated this winter, and a course of thirteen Lectures on Botany by Mr. L. C. Miall is now in progress. The Council have been supported in this endeavour to spread scientific knowledge by the attendance of about 100 persons weekly.

Two months ago the able and valued Curator of the Society, Mr. Henry Denny, was removed by death. He had served the institution most assiduously for 45 years, and every person connected with the Leeds Philosophical and Literary Society is aware how greatly the Museum, in all its branches, increased under his care and in consequence of his zealous labours. Mr. Denny was a man of extensive scientific knowledge and well known to the students of certain recondite branches of Natural History by the monographs which he published in his younger days. He was the first Stipendiary Curator of the Leeds Museum, with which his name will always be connected.

Shortly after Mr. Denny's lamented death a Subscription was set on foot by the Council and many of the oldest friends of the Society with the object of raising a fund for the maintainence and education of his large family. A considerable sum has already been subscribed, and the Council do not doubt that the movement will receive the general support of the Members of the Society.*

The vacancy occasioned by Mr. Denny's death was filled up on April 5th by the election of Mr. L. C. Miall, late Curator to the Bradford Philosophical Society.

The total number of persons admitted by payment to the Museum during the past year is 34,467. It has been found necessary to abandon for the present the opening of the Museum in the evening in consequence of the small attendance on these occasions.

The Annual Conversazione was held on December 6th, when the large number of Members and Subscribers that

* Further Subscriptions will be received by Dr. Eddison, 19, Park Square; or by the Bankers, Messrs. W. Williams Brown, & Co.

filled the Hall enjoyed the display of a rich collection of works of Art and Science.

Annexed is a summary of the Meteorological observations taken at the Philosophical Hall in 1870.

1870.	Mean Temperature.	Mean Height of Barometer.	Total Amount of Rain in Inches.
January	37·6 Fah.	29·808	1·695
February	37·0	29·753	1·295
March	40·7	29·893	1·510
April	50·3	29·936	0·455
May	54·8	29·839	0·905
June	59·3	29·917	1·430
July	64·8	29·821	0·810
August	61·6	29·841	1·520
September	55·4	29·871	0·620
October	48·6	29·509	4·850
November	39·6	29·613	1·705
December	34·7	29·753	2·670

The mean monthly temperature was 48·7°.

The mean monthly height of Barometer was 29·796 inches.

The total rainfall for the year was 19·465 inches.

The greatest degree of heat, as indicated by the Thermometer in the Sun, was 110° on the 11th August; the greatest in the shade 92°, on the 23rd July; and minimum 12°, on the 25th December.

The greatest Barometric pressure was on the 1st December and 1st of October, being 30·550, the temperature of the Mercury being 58° in both cases; the least pressure was on the 23rd October, being 28·580, temperature of Mercury, 59.

The greatest fall of rain was on the 7th October, being 1·190.

The following resolution, of which due notice had been given, was adopted by the Annual Meeting:—

"That Rule 13, Chapter I, be repealed, and the following substituted for it:—

Ladies and Gentlemen (the latter being under 21 years of age), being relations of, and resident in the house of any Member or Subscriber, may attend the reading of Papers and Lectures, upon paying annually, in advance, a Subscription of Seven Shillings and Sixpence."

In order to prevent the entrance of unqualified persons the Council find it necessary to require, on all occasions,

the production of the Ticket of Membership or Subscription at the entrance. The large number of Members and Subscribers renders it impossible for the attendant to recognise all those who have the privilege of admission. The Council hope that no inconvenience will result from this regulation, which is found indispensable to protect the interests of the Society.

LEEDS PHILOSOPHICAL AND LITERARY SOCIETY.

STATEMENT OF RECEIPTS AND EXPENSES FOR THE YEAR 1870-71.

RECEIPTS.

	£	s.	d.	£	s.	d.
Bankers' Balance	44	14	6			
Curator's ditto	32	0	8			
				76	15	2
84 New Proprietary Members, at 21/	88	4	0			
76 New Ordinary ditto 21/	79	16	0			
17 Old Ordinary ditto 42/	35	14	0			
160 Old Annual Subscribers, at 21/	168	0	0			
49 New ditto 21/	51	9	0			
159 Old Annual Subscribers, at 5/	39	15	0			
77 New ditto 5/	19	5	0			
Arrears	11	11	0			
				493	14	0
Rents of Cellars	50	0	0			
,, from the Geological Society...						
,, of Lecture Room	54	10	0			
				104	10	0
Receipts for the Museum	148	12	3			
,, Conversazione	17	15	0			
				166	7	3
Sale of Catalogue						
Sundries	66	3	7			
Interest	0	13	0			
				66	16	7
Balance due to Bankers				34	11	0
				£942	14	0

DISBURSEMENTS.

	£	s.	d.	£	s.	d.
Repairs..	95	9	8			
Taxes and Rates	3	17	1			
Insurance	13	15	0			
Coals	9	16	6			
Gas	9	9	2			
Cleaning the Hall	0	19	0			
				133	6	5
Salaries—Curator's	200	0	0			
,, Assistant Curator's ..	55	15	6			
,, Porter's	58	3	9			
				313	19	3
Collections—Geological	0	7	0			
,, Zoological	63	10	5½			
,, Archæological	8	17	6			
,, Industrial						
,, Library	30	14	10			
				103	9	9½
Postages	9	14	4½			
Printing and Advertising	33	9	3			
Lectures	206	12	6			
Conversazione	48	4	8			
Commission to Collector	6	2	9			
Bankers' Commission	0	12	0			
Sundries	56	4	5½			
				361	0	0
Balances—Bankers'						
,, Curator's	30	18	6½			
				30	18	6½
				£942	14	0

LIST OF DONATIONS AND ADDITIONS

TO THE SOCIETY'S

MUSEUM & LIBRARY,

1870-71.

GEOLOGY AND MINERALOGY.

Two pieces of Slate from Eskdale, Cumberland, exhibiting faults ... ... Pair of Horns of Megaceros, Isle of Man ... ... Frontal Bone and Horn-cores of Bos primigenius, dug out of a peat moss at Broadmire Moss, Thurston Field, near Carlisle, with scapula, 3 ribs, atlas, and axis of the same ... ... Skull and Horn-cores of Bos primigenius, dug out of a peat moss at Hawick. Tooth of Mastodon, Ohio	Mr. H. C. Marshall.
Loftusia persica and Saccamina Carteri from Mountain Limestone, Elfhills, Northumberland	Natural Hist. Soc., Northumberland, Durham, and Newcastle.
Bauxite (Aluminate of Iron) from Dept. of Var, France ... ... Saccammina Carteri from Carboniferous Limestone, Northumberland. Two specimens, one polished ... ... Parkeria. Cambridge Greensand ...	Mr. H. B. Brady, F.L.S., Newcastle.
Blocks of Coralline and Red Crag, Suffolk	Rev. J. W. Smith, Ipswich.
Sigillaria Organum (Methley)	Mr. John Holmes.
Fossil Fish (Acrolepis), from Ironstone Nodule in the roof of the Halifax Hard Bed, Rawden	Rev. W. Hunt Painter, Derby.

ZOOLOGY.

Horns of Red Deer, from a peat moss at Ennerdale, near Whitehaven	Mr. H. C. Marshall.
Lamina of Whalebone, 11 ft. long ...	
Molar Tooth of Elephant	Mr. James Bapty.
Tusk of Hippopotamus	
Rhea Americana	Mr. R. B. Jowitt.
Fine adult male Orang, from Borneo ...	Mr. O. Nussey.
Tufted-tail Porcupine (Atherura Africana), from Fernando Po.	The Society.
Nearly complete collection of British Lepidoptera, in handsome Mahogany Cabinet	Mrs. Frederick Buckton.
Adult Female Orang, from Borneo. Skeleton of same individual	Mr. John Barran, Mayor of Leeds.
White Sparrow (Passer domesticus) ...	Mr. G. M. Angas, Beeford, Lowthorpe, Hull.
Skin and Skeleton of male and female Tiger-cats	Rev. Thomas Farrar, British Guiana.
Skin and Skeleton of Two-toed Sloth (Cholœpus didactylus)	
Skin and Skeleton of male Crab Dog (Thous cancrivorus)	
Two Skulls of Tapir (Tapirus terrestris)...	
Skull of Bush-master Snake	
Skin of Snake	

ARCHÆOLOGY AND ETHNOLOGY.

Head of Maori, named Ingolee, aged 25 years, killed in battle, 1825	Mr. H. C. Marshall.
Another Head of Maori	
Tatooing Instruments, from New Zealand	
Very fine Græco-Phœnician Vase, 2 feet 2½ inches high, found among tombs in Laimia, Cyprus...	Mr. W. Aldam.
Fan of Satin-wood, from Scinde, and Chinese Fishing Rod	Mr. James Bapty.
Wooden Mask, made by the Sticker Tribe of Flat-head Indians	Mr. Arthur Marshall.
Do., Flat-head Indians	
Wooden Idol, do.	
Wooden Bowl, Comox Indians	
Do., Flat-head Indians	
Flint Implement. Poitou	
Five Flint Implements. Suffolk ...	
Ancient Spur	

Græco-Phœnician Patera, Cyprus ...	Mr. J. I. Ikin.
Casts of Sculptured Bones, from the Caves of Dordogne	Mr. Augustus Franks.
Sixty Greek Coins from Leucadia, Santa Maura	Mr. J. Wood.
Very fine Syenite Axe-head, from Michigan, U.S.	Mr. R. Terry, East Ardsley.
Vase of Nolan Ware	Mr. W. Hebblethwaite.
Two Bellarmines or Stone Jars, from Wakefield and Lincoln	The Society.
Jade Adze	Mr. R. C. Battye, Yeadon.
Jade Implement, from Malaraway, Australia	
Flint Implements, from Flamboro' and Neighbourhood	Mr. J. J. Barugh, Charleston.
Flint Implements, from Adel	Mr. Twigg, Adel Reformatory.
Casts of Ivory Carvings, prepared for the Arundel Society, in 14 glazed frames...	Mr. Edward Hailstone, Walton Hall, near Wakefield.
Model of a Brick House, made by an Arrawack Indian, and containing, in miniature, every article in daily use ... Two specimens of Cassava Meal, Baking Pan, 6 Cassava Cakes, 2 Pepper Pots, 2 *Goglets*, *Matapi* or Cassava Strainer, 2 Fans, Blow Pipe, 2 War Clubs, *Matuli* or Cassava Sieve, Grate for Cassava Roots, *Mannary* or Sifter, *Quake* or Basket, 2 *Barbecots*, Gutter for Cassava Juice, Conjurer's *Shaak-shaak*, 6 *Shaak-shaaks* used in dances, 6 *Macquari* Whips used in funeral dances, Bow, 4 Arrows, 4 Hammocks, Models of Tent-boat, Paddles, Figures, &c., 2 Staves of "Letter-wood." ...	Rev. Thomas Farrar, H.M. Settlement, British Guiana.
Greenstone Hammer, found in the Donor's Grounds	Rev. J. Fountayne Woodyeare, Ankhill.

TECHNOLOGY.

Specimens illustrating the process of the Manufacture of Beet-root Sugar, at Lavenham, in Suffolk	Mr. W. Hebblethwaite.
Brazilian Pebble, as used for Spectacles ...	Mr. R. Reynolds.
Collection of Beetles, used for Ornamental purposes	The Society.

MISCELLANEOUS.

A Gourd, Catalian Growth	Mr. W. Hebblethwaite.
Five Dollar Note of the Confederate States, 10 Cent Note of the United States	Mr. John Marshall.
Two Crab-nut-tree Seeds. Snake Nuts...	Rev. Thomas Farrar, British Guiana.

PUBLICATIONS.

Smithsonian Contributions to Knowledge, vol. xvi. ... ... Smithsonian Miscellaneous Collections, vols. viii. and ix. ... ... Annual Report, Smithsonian Institution, 1868	The Smithsonian Institution.
Proceedings of the Essex Institute, vol. vi., pt. 1868 ... ... Bulletin of the Essex Institute, vol. i., 8vo., 1867	The Essex Institute.
Geological Report of the Exploration of the Yellowstone and Missouri Rivers, by Dr. F. Van Hayden, 1859-60, 8vo. Washington. ... ... Preliminary Field Report of the United States. Geological Survey of Colorado and New Mexico, by F. Van Hayden, U.S., Geologist, 8vo. Washington, 1867	Dr. F. Van Hayden, Washington.
Statistics of Minnesota for 1869... ... Minnesota, its progress and capabilities, for 1860-61 ... ... Proceedings of the 3rd Annual Meeting of the Minnesota Editorial Convention, 1869. Annual Report of the Minnesota Historical Society for 1868-69 ... Report of the Exploration in the Mineral Regions of Minnesota, during the years 1848, 1859, 1864, by Col. C. Whittesley	The Minnesota Historical Society.
Proceedings of the American Philosophical Society, vol. xi., Nos. 82 and 83 ... Transactions of the American Philosophical Society, 1870	American Phil. Society.
Proceedings of the American Academy of Arts and Sciences, vol. viii.	American Academy of Arts and Sciences.
Narrative of a Journey to Musardu, the capital of the Western Madingoes, by Benjamin Anderson	Smithsonian Institute.

Proceedings of the Boston Natural History Society, 1869	Boston Natural History Society.
Monuments and Ornaments of Remote Ages, by J. B. Waring. 4to. ...	Mr. W. B. Denison.
Proceedings of the Academy of Natural Science of Philadelphia, for 1869 ...	Academy of Natural Sciences of Philadelphia.
Report of the Invertebrata of Massachusetts. Second Edition, comprising the Mollusca, by Augustus A. Gould, M.D. Edited by W. G. Binney	Boston Society of Natural History.
History and Antiquities of the Parish of Halifax, by the Rev. John Watson, pt. 1 and 2. Second Edition, with corrections, by F. A. Leyland	Mr. F. A. Leyland.
Annual Report of the Hull Lit. and Phil. Society, 1867-68	The Hull Lit. and Phil. Society.
Nordiske Oldsager i det Kongelige Museum i Kjöbenhaven ordnede og forklarede af J. J. A. Worsaae ...	The Society.
Catalogue of Satirical Prints. Div. 1., vol. i.	Trustees of the British Museum.
Catalogue of Shield Reptiles. Part 1. Supplement	
Catalogue of Lithophytes	
Hand List of Birds. Parts 1 and 2 ...	
Guide to Exhibition Rooms	
„ Manuscripts	
„ Minerals	
Index to Minerals	
Cuneiform Inscriptions of Western Asia, vol. iii.	
Catalogue of Lyric Manuscripts by W. Wright, LL.D.	
Catalogue of the Greek and Etruscan Vases, vol. ii.	
Catalogue of the Specimens Dermaptera Saltatoria, part 4, by Francis Walker, F.L.S.	
Catalogue of Monkeys, Lemurs, and Fruit-eating Bats, by Dr. J. E. Gray, F.R.S.	
Catalogue of Oriental MSS., part 2 ...	
„ Dermaptera Saltatoria, pt. 5	
Hand List of Birds, part 3	
Guide to 1st Vase Room	
Catalogue of Meteorites	

Memoirs of the Royal Astronomical Society, 1868-9. Part 1 and 2, and vol. xxxviii., 1871 ... ... A general Index of the first 29 vols. of the monthly notices of the Royal Astronomical Society... . ... Solar Eclipse of August 18th, 1868 ...	Royal Astronomical Society.
Greenwich Observations, 1868. 4to. .. Breen's Corrections of Bouvard's Elements of Jupiter and Saturn, 1868	The Lords of the Admiralty.
Copy of the Dublin Journal for Oct. 18th, 1794	Mr. E. Irwin, J.P.
Mineral Statistics of the United Kingdom for 1869 ... ... Catalogue of the Publications of the Geological Survey	The Director General of Geological Survey.
Catalogue of Ivory Carvings prepared for the Arundel Society	Mr. Edward Hailstone, Walton Hall, near Wakefield.
Journal of the Anthropological Institute, January to July, 1871...	
Debrett's House of Commons and Judicial Bench	Messrs. Day & Son.
Canadian Journal, 1870-1	Canadian Institute.
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FIFTY-SECOND REPORT

OF

THE COUNCIL

OF THE

LEEDS

PHILOSOPHICAL & LITERARY

SOCIETY

AT THE

CLOSE OF THE SESSION 1871-72

Read at the Annual Meeting, May 7th, 1872

LEEDS
PRINTED BY McCORQUODALE & CO., BANK STREET

MDCCCLXXII

IMPORTANT RULE

RESPECTING THE PROPERTY OF THE SOCIETY

PASSED OCTOBER 8TH, 1860

That in the event of a dissolution of this Society, its Property and Effects, whether real or personal, shall not be disposed of for the personal benefit of the Members, but shall be appropriated in such manner for the advancement of Science, Literature, or Art, in the town of Leeds, as shall be determined by a majority of the Members at an extraordinary Meeting to be convened for that purpose. But that no dissolution of the Society shall take place without the consent, in writing, of a majority holding not less than two-thirds of the Proprietary Shares.

FORM OF A BEQUEST TO THE SOCIETY

Every person desirous of bequeathing to the Society any Sum of Money, Specimens, Books, Instruments, or other Property, is requested to make use of the following Form:—

I give and bequeath to the Trustees for the time being of the Society established at Leeds, called "THE LEEDS PHILOSOPHICAL AND LITERARY SOCIETY," *for the use of the said Society, the sum of , to be paid out of such part of my personal Estate as I may legally charge therewith.* [Or here enumerate the Effects or Property intended to be bequeathed]. *And I direct that the Receipt of the Treasurer of the said Society for the time being, shall be an effectual discharge to my Executors for the said Legacy.*

REPORT OF THE COUNCIL

AT THE CLOSE OF THE

FIFTY-SECOND SESSION

In reviewing once more the position and prospects of the Society, the Council have the satisfaction of reporting that its numerical strength is maintained.

A considerable accession of Members and Subscribers occurred about five years since, when a total of 646 was reached. Fluctuations of varying degree have happened annually since that period, as might have been anticipated. The following is the strength of the Society's roll of names at the present time—Proprietary and Ordinary Members, 239; Subscribers, 461; total, 700.

At the commencement of this Session, the amount of the annual subscription of the class hitherto known as Five Shilling Subscribers was altered to Seven Shillings and Sixpence. As this class had become numerous, the adjustment of its rate of subscription to one bearing a more equitable comparison with the payments of members and ordinary subscribers was evidently an important question for the interests of the Society. It was with much satisfaction that the Council found the alteration cheerfully accepted by those concerned. This class of subscribers now numbers 204, as compared with 236 a year since, their total payments being £76 10*s.* instead of £59.

Another change which came into operation at the beginning of the Session was the enforcement of a regulation requiring every member or subscriber to produce a ticket upon each attendance at a lecture. For the general disposition to comply with this necessary regulation the Council beg to thank the members and subscribers, and to state that their arrangements for exceptional cases of default have been made so as to avoid giving unnecessary inconvenience. In this matter, the force of habit which formed the chief difficulty in making the change will now have been enlisted on the side of the new regulation.

The Council have much pleasure in acknowledging a further donation of £10 from T. Emsley, Esq., of Burley-in-Wharfedale, and also of £10, being the price of an extra Share previously held by him, from John Rhodes, Esq.

The following is a list of the Papers that have been read during the past Session :—

1. "On the Present State of the Question of Spontaneous Generation." By the President, J. D. Heaton, M.D., F.R.C.P. Read Oct. 18th, 1871.

2. "On the Moabite Stone." By the Rev. C. D. Ginsburg, LL.D. Read Nov. 7th, 1871.

3. "On Economic Studies on London." By Professor Leone Levi, F.S.A., F.S.S., Doctor of Political Economy, &c. Read Nov. 21st, 1871.

4. "On the Physical Constitution of Comets," with illustrations. By Professor Osborne Reynolds, M.A., Fellow of Queen's College, Cambridge. Read Dec. 5th, 1871.

5. "On the Growth of the English Constitution from the earliest times." By E. A. Freeman, M.A. Read Jan. 9th, 1872.

6. Second Lecture upon the same subject. Read Jan. 16th, 1872.

7. "On Recent Speculations respecting the Climatal History of the Earth." By W. Pengelly, F.R.S., F.G.S. Read Jan. 23rd, 1872.

8. The Conversazione. Held Feb. 1st, 1872.

9. "On the Physical Conditions and Animal Life of the Deep Sea." By W. B. Carpenter, M.D., V.P.R.S., President-elect of the British Association. Read Feb. 6th, 1872.

10. Second Lecture upon the same subject. Read Feb. 9th, 1872.

11. "Electricity and War." With illustrations and experiments. By Nathaniel J. Holmes. Read Feb. 20th, 1872.

12. Second Lecture upon the same subject. Read Feb. 22nd, 1872.

13. "On the Physical Features of Iceland, the Manners and Customs of the Icelanders," &c. By Jón A. Hjaltalin. Read March 5th, 1872.

14. "On Geographical Botany, with Special Reference to the Origin and Distribution of the British Flora." By the Rev. G. Henslow, M.A., F.L.S., Lecturer on Botany at St. Bartholomew's Hospital, London. Read March 19th, 1872.

15. "On Great Whales." By William Turner, M.B., Professor of Anatomy in the University of Edinburgh. Read April 2nd, 1872.

16. On the Geology of Leeds and the Neighbourhood." By L. C. Miall. Read April 9th, 1872.

The Courses of Educational Lectures provided during the preceding sessions have been continued during the winter. Before Christmas, ten lectures on "The Distribution of Plants and Animals," were delivered by Mr. L. C. Miall; and, after Christmas, eight lectures on "Zoology," dealing more particularly with the Mammalia, were given by Mr. Edward Atkinson, F.L.S., F.Z.S.

The Annual Conversazione, which had been announced for December 19th, was postponed to February 1st, in consequence of the illness of H.R.H. the Prince of Wales. An unusually large number of members, subscribers and their friends was present. The principal features of the Conversazione were the large and interesting collection of pictures, photographs, and botanical diagrams, contributed from the collections at South Kensington, by the Science and Art Department; the extensive series of metal work,

carvings in wood and ivory, &c., lent by the Indian Museum; and the antiquities, Egyptian sketches, and works of art, contributed by Alfred Harris, Esq., jun., of Kirby Lonsdale.

The re-arrangement of some sections of the Society's valuable Museum is now proceeding. During the past year, the curator, Mr. L. C. Miall, has given a large amount of attention to the collections of British birds and minerals. Both these series have been cleaned, arranged, and more fully named. The labels attached to the specimens are all printed, and in part descriptive. When similar cards have been supplied to all the objects exhibited in the Society's Museum, it is believed that a considerable gain in clearness and instructiveness will have been effected. The work of printing these labels has been performed by the Curator's assistant by means of a small printing-press upon the premises. Although the large number of labels required has occupied the greater part of the assistant's time whilst the re-arrangement has been in hand, the Society has acquired a valuable result without any appreciable addition to its expenses. In the new classification of the mineral collection, the Curator has embraced an opportunity for making the series more thoroughly illustrative of Mineralogy as a science. By the introduction of a series of elementary bodies, by models representing crystallographic methods, and by illustrations of the physical qualities of substances as used by the mineralogist for their differentiation, the visitor to this department is led up to the science of the subject, and, as far as possible, a clue is given him which will serve as a guide to his intelligent inspection of the mineral collection. Convinced of the desirability of thus making the Society's Museum as easy to be read by the student as the pages of an open book, the Council have, by one of their last acts, decided upon printing a Guide to

the mineral collection, in order to supplement the necessarily brief descriptions given upon the labels. This Guide is ready for the press, and will be sold at the price of one penny. Should its reception by visitors to the Museum justify such a course, other departments of the collections will claim similar elucidation, and when completed, the whole of these descriptive accounts may be bound together. In this way, it is hoped that a desideratum long recognised by the Society will be attained by the production of an inexpensive General Guide to the Museum.

In connection with the continued development of the Society's Museum as an important educational agency, the Council believe that their successors will be stimulated by a steadily increasing demand for these aids to science-teaching. One influence which appears likely to promote such tendencies is the recent opening of the Public Free Library, by which a large collection of books upon all departments of science has been thrown open to every one, the permanence of the system being ensured by its support from the municipal funds. The Council recollect with satisfaction that their former colleague and president, the present Bishop of Hereford, (then Canon Atlay, Vicar of Leeds), gave his most hearty and effective support to the proposal to establish this library.

The total number of persons admitted by payment to the Museum during the past year is 42,221, a considerable increase upon the two preceding years. With the exception of 1868-9, when the Art Exhibition brought great numbers of visitors to the town, no previous year has equalled the receipts from this source in 1871-2.

A summary of the meteorological observations taken during the year 1871 is appended.

In their last Report, the Council brought before the members and subscribers the claims of a fund then being

raised for the benefit of the widow and younger children of the Society's late valued Curator, Mr. Henry Denny. The general response to this appeal showed the estimation in which Mr. Denny was held, and the fund reached £883 7*s.* 6*d.* The sum of £37 10*s.* 1*d.* was handed to Mrs. Denny, and £837 7*s.* 6*d.* has been invested in the names of the following trustees, viz., J. D. Heaton, Esq., M.D., J. E. Eddison, Esq., M.D., and T. W. Stansfeld, Esq.; the direction of the principal sum, and also of the interest produced, being vested in the Council for the time being, subject to the objects for which the fund was raised. The interest upon the invested amount is now being paid to Mrs. Denny at half-yearly periods.

Summary of Meteorological Observations taken at the Philosophical Hall, Leeds, during the year 1871.

1871.	Mean Temperature.	Mean Height of Barometer.	Total Amount of Rain in Inches.
January	33·6 Fah.	29·729	0·655
February	42·3 ,,	29·766	1·090
March	48·2 ,,	29·832	0·430
April	46·6 ,,	29·429	3·150
May	53·6 ,,	29·938	1·000
June	54·5 ,,	29·795	4·084
July	60·9 ,,	29·623	3·217
August	64·8 ,,	29·767	0·993
September	54·9 ,,	29·757	5·570
October	50·4 ,,	29·763	2·954
November	39·1 ,,	29·742	0·750
December	40·2 ,,	29·873	1·214

The mean monthly temperature was 49·1°.

The mean monthly height of the barometer was 29·751 inches.

The total rainfall for the year was 25·107 inches.

The greatest degree of heat, as indicated by the thermometer in the sun, was 106° on the 13th August; the greatest in the shade was 89° on the 10th August; and minimum 11° on 1st January.

The greatest barometric pressure was on the 30th May, being 30·521 inches, the temperature of the mercury being 69°; the least pressure was on 16th January, being 28·550 inches, temperature of mercury 49°.

The greatest fall of rain was on the 28th September, being 1·731 inches.

Latitude, 53° 48′ 20″ N.; longitude, 1° 33′ W. Height of the cistern of the barometer above the mean level of the sea, 137 feet; height of the rain gauge above the street, 46 feet.

LEEDS PHILOSOPHICAL AND LITERARY SOCIETY

STATEMENT OF RECEIPTS AND EXPENSES FOR THE YEAR 1871-72

RECEIPTS.	£	s.	d.	£	s.	d.
To Curator's Balance	30	18	6½			
				30	18	6½
Subscriptions of—						
To New Proprietary Members, at 21*s.*	89	5	0			
,, New Ordinary Members, at 21*s.*	77	14	0			
,, Old Ordinary Members, at 42*s.*	31	10	0			
,, Old Annual Subscribers, at 21*s.*	190	1	0			
,, New Annual Subscribers, at 21*s.*	38	17	0			
,, Old Annual Subscribers, at 7*s.* 6*d.*	64	10	0			
,, New ditto at 7*s.* 6*d.*	12	0	0			
,, Arrears	1	1	0			
				504	18	0
,, Rents of Cellars	50	0	0			
,, ,, of Lecture Room	92	11	0			
				142	11	0
,, Receipts for the Museum	175	18	5			
,, ,, for the Conversazione	23	0	0			
,, ,, for Science Classes	19	18	0			
,, Sale of Catalogue	1	12	6			
,, Sundries	19	18	5½			
				240	7	4½
				918	14	11
,, Balance due to Bank				113	17	11
				£1,032	12	10

DISBURSEMENTS.	£	s.	d.	£	s.	d.
By Balance due to Bank, 1870-71	34	11	0			
				34	11	0
,, Repairs	127	12	4½			
,, Taxes and Rates	2	16	9			
,, Insurance	13	15	0			
,, Coals	14	5	9			
,, Gas	17	17	6			
,, Cleaning the Hall	2	17	0			
				179	4	4½
,, Salaries—Curator's	250	0	0			
,, ,, Assistant Curator's	32	8	0			
,, ,, Porter's	54	10	0			
				336	18	0
,, Collections—Geological	6	9	10			
,, ,, Zoological	28	7	6½			
,, ,, Archæological	7	4	2			
,, ,, Industrial	1	13	11			
,, ,, Library	13	3	4½			
				56	18	10
,, Science Classes	22	1	0			
				22	1	0
,, Postages	16	14	1			
,, Printing and Advertising	45	14	7			
,, Lectures	142	14	6			
,, Conversazione	59	6	2			
,, Commission to Collector	12	18	6			
,, Bankers' Commission	3	5	0			
,, Sundries	26	11	5½			
				307	4	3½
,, Balance—Curator's	95	15	4			
				95	15	4
				£1,032	12	10

LIST OF DONATIONS AND ADDITIONS

TO THE

SOCIETY'S MUSEUM AND LIBRARY

1871–72

GEOLOGY AND MINERALOGY

A collection of Fossils and Minerals from the collection of the late A. Oxley, M.D., of Askerne, including—	Mr. T. Louis Oxley, Roundhay
Pecten sublævis, Lias	
Head of Ichthyosaurus, do.	
Ammonites Blagdeni, do.	
„ obtusus, do.	
„ heterophyllus, do.	
Nautilus, do.	
„ do.	
Belemnites tornatilis, do.	
Spine of Hybodus, do.	
Slab with Gryphæa, &c., Kelloway Rocks	
Ammonites giganteus, Oolite	
„ cavatus, Speeton Clay	
„ quadrifidus, do.	
Pecten cinctus, do.	
Alum shale and crystals, Whitby	
Bones of Ichthyosaurus and Plesiosaurus	
2 Molars of Elephas primigenius, Scarborough	
7 Specimens of Rock Crystal	
4 Corals	
3 Spongia radiciformis, Flamborough	
Lima rudis, Oolite	
2 Astacus rostratus	
Septaria	
Phasianella Haddingtonensis	
Kimmeridge Coal	
Zamites gigas, Gristhorpe	
Astropecten, Oolite	
2 Pleurotomaria anglica, Lias	
Terebratula trilineata, Oolite	
Pecten demissus, do.	
Spirifera pinguis, Mountain Limestone	
„ ovalis, do.	
„ trigonalis, do.	
Agates and Carnelians	
Lead and Zinc ores	

Pecten æquivalvis, Marlstone	Mr. Samuel Spure, Morley.
Various Carboniferous and Silurian fossils..	Mr. L. C. Miall.
Elementary substances for the mineral collection, viz. :—oxygen, hydrogen, nitrogen, chlorine, bromine, carbon, sulphur, iodine, potassium, sodium, magnesium, zinc, cadmium, cobalt, nickel, tin, arsenic, antimony, bismuth, copper, and silver	Mr. R. Reynolds.
Larkin's Crystal Cube for shewing the axes of regular crystals	Mr. R. Reynolds.
Specimens of crude and manufactured Ozokerite, Tincal or Native Borax, Torbanite, and Kimmeridge Coal	Mr. R. Reynolds.
Sodium in exhausted tube	Herr Professor Weinhold, Gewerbeschule, Chemnitz.
Greensand fossils, from Cambridgeshire ...	Mr. George Smith, Ardsley.
Specimen of Apatite	Mr. J. T. Pearson.
Calamites Suckovii in Ironstone	Mr. T. Nunns, Carlton, near Wakefield.
Pholadomya and Cypricardia, from Oolite at Castleton.....	Mr. J. E. Lutz, Rawden.
2 cwt. of Brown Coal (Lignite)	Mr. H. M. Felkin, Chemnitz.

ZOOLOGY AND BOTANY

White rat (stuffed)	Mr. W. Sykes Ward.
Madreporaria muricata, with attached sponge.....	Dr. Heaton, President of the Society.
3 Skins and skeletons of Perigalea, 2 skins of Diabolus, 3 adult specimens of Perameles (skin and skeleton), 2 young of the same, 1 skin of the same	Mr. W. H. Gellibrand, Tasmania.
Red Deer, fresh specimen	Mr. R. Tennant, Scarcroft.
Gulf Weed (Fucus bacciferus), Australian Hawk (Astur), Stringy Bark	Mr. Edward Joy, Sydney.
Nest of Trap-door Spider, Jamaica	Miss Clark, Jamaica.
Skeleton of Bustard (Otis Tarda)	Dr. Heaton, President of the Society.
Crab-eating Dog (Thous cancrivorus), Guiana.....	Mr. John Lupton.
Parrot fish	Mr. F. Bainbridge, Harrogate.
2 Peregrine Falcons (N. America, young, and Scotland, adult), 3 Sparrow Hawks from Thirsk.....	Mr. A. Clapham, Scarborough.

Pupa and Imago of Dasychira pudibunda...	Dr. Heaton.
Aquarium, with two living specimens of the Axolotl (Sirenodon)	Mrs. Nunneley.
Case of Birds	Mrs. Nunneley.
Greater Long-eared Bat (Vespertilio auritus)	Mr. James Alexander, Ripon.
Dynastes, from Pernambuco	Mr. Joseph Croysdale, Leeds.

ARCHÆOLOGY AND ETHNOLOGY

Wooden Clapper used by Medicine Man of North America (Vancouver's Island) ...	Mr. Thomas Stephenson.
3 Shilling pieces of Charles I. (Tower Mint) found in removing a house in Meadow Lane	Mr. John Barran, Mayor of Leeds.
7 Casts in plaster of inscribed and sculptured rocks on Rombald's Moor, near Ilkley	Mr. John Holmes, Methley.
Further collection of Flint Implements, from Flamborough	Mr. J. J. Barugh, Bridlington.
Quern, found at Ickles, Rotherham (Roman Encampment)	Mr. Charles Rawson, Rotherham.
Quern	Mr. E. Filliter.
Further collection of Flint Implements and Chippings, from Adel.....	Mr. Twigg, Adel.

TECHNOLOGY

Diagram illustrating the manufacture of Glass	Mr. R. Reynolds.
Collection of Beetles, used for ornamental purposes by jewellers, artificial flower makers, milliners, &c.....	Purchased by the Society.
Slab of Lithographic Stone, as used by Printers	Mr. L. C. Miall.
Flowers of Jasminum officinale and Epidendrum, from Canton, used for scenting tea	Mr. R. Reynolds.
Indian Sun-hat, made of pith.....	Mr. J. T. da Cunha.

MISCELLANEOUS

Photographs and Maps of the Roundhay Park Estate.....	Mr. John Eddison, Agent to the Trustees of the late Mr. W. N. Nicholson.
60 Microscopic Slides	Mr. L. C. Miall.

Watch, the plates and movements of which are made of the plates of a boiler which burst at Bingley in 1869	Mr. Robert Coultish, Staningley Foundry.
Old watch-key, in three joints	Mr. John Wilson, jun., Pudsey
Relics of the Chicago Fire. Nails fused together, and sheets of glass	Mr. Jas. B. Madder, Leeds.

PUBLICATIONS

Note on Dr. Hinrich Nitsche's Paper on "Some interesting Points concerning the mode of Reproduction of the Bryozoa," (Q.J.M.S.), by Rev. T. Hincks, B.A.	The Author.
Supplement to Catalogue of Zoophytes of South Devon and Cornwall (Ann. Nat. Hist.)	Do.
Smithsonian Contributions to Knowledge. Vol. XVII.	Smithsonian Institution, Washington.
Annual Report of the Board of Regents of the Smithsonian Institution, 1869	Smithsonian Institution, Washington.
Announcement of the Wagner Free Institute of Science, 1870-1	Wagner Free Institute of Science, Philadelphia.
To-day; a paper printed during the Fair of the Essex Institute, 1870	Essex Institute.
Appendix to Benjamin Anderson's Journey to Musardu, being *fac-simile* of Arabic letter from the King of Musardu to the President of Liberia, with translation by Rev. Edward W. Blyden. 1870	Rev. Edward W. Blyden.
Bulletin of Museum of Comparative Zoology at Harvard College, Cambridge, Mass., Vol. II., Nos. 1, 2, and 3. Report of do., 1870	Museum of Harvard College.
Boston Society of Natural History Memoirs Vol. II. pt. I. Proceedings, Vol. XIII., sheets 15-23	Boston Society of Natural History.
Congressional Directory for the 3rd Session of the 41st Congress of the United States of America	United States Government.
Annual Report of the Minnesota Historical Society for 1870 Collections of the Minnesota Historical Society. Vol. III., pt. I.	Minnesota Historical Society.
Bulletin of the Essex Institute, Vol. II. for 1870 Proceedings and Communications of the Essex Institute, 1868-71, Vol. VI., pt. II.	Essex Institute.

Proceedings of the American Philosophical Society, Vol. XI., Nos. 83-4-5, XII., 86-7 Transactions of the American Philosophical Society, Vol. XIV., N.S., pts. I., II., III	American Philosophical Society.
Transactions of the Glasgow Philosophical Society.....	Glasgow Philosophical Society.
Catalogue of Syriac Manuscripts, Part II.	Trustees of the British Museum.
Canadian Journal, 1871-2, XIII	Canadian Institute.
Greenwich Observations for 1869 and 1870	Lords of the Admiralty.
Patent Office Report, Washington, 4 vols. 1868.....	United States Patent Office.
Bidragtil Theorien forde ubestemte chemiske Forbindelser, af C. M. Guldberg ... Om Vœdeskers Udvidelse ved konstant Tryk, af C. M. Guldberg ..... Repräsentation der Imaginären der Plangeometrie, von M. S. Lie ..... Bidrag til den antike Philosophis Historie, af Dr. G. V. Lyng ..... Havets Temperatur mellem Island, Skotland og Norge, af H. Mohn ..... Om den kyrenaiske Skole, navnlig Annikeris og Theodoros, af Dr. G. V. Lyng Norsk Huus-Kalender, 1859 ..... Ertsforekomster i Sondhordland og paa Karmoen, af A. Helland..... Christiania Omegns ..... Phanerogamer og Bregner, af A. Blytt..... Skolevœsenets Ordning i Massachusetts, fremstillet af H. Nissen ..... Anaxagorasog Atomistiken, af M. J. Monrad ..... Nogle Strobemœrkninger om Bevidsthedens Vœsen, m. M. af C. Winter-Hjelm ..... Om Skuringsmœrker Glacial-formationen og Terrasser, samt om grundfjeldets og sparagmitfjeldets mœgtighedi Norge. I. Grundfjeldets. Af Prof. Theodor Kjerulf	Royal University of Norway, Christiania.
"The Gristhorpe Tumulus," by W. C. Williamson, F.R.S.	Mr. J. W. Teale, Scarborough.
The Industrial Progress of New South Wales, being a report of the Intercolonial Exhibition of 1870, at Sydney	Mr. Edward Joy, Sydney.
Abridgements of Specifications of Patents	The Commissioner of Patents.

Guide to Bronze Room Catalogue of Hemiptera Heteroptera, Pt. IV.	Trustees of the British Museum.
Reliquiæ Diluvianæ, by Rev. William Buckland	Mr. John Lupton.
Report of the British Association for the Advancement of Science, 1871.....	British Association.
Mineral Statistics for 1870 Geology of Carboniferous Rocks N. and E. of Leeds, and Permian and Triassic Rocks about Tadcaster	Director General of the Geological Survey.
Report on the best mode of obtaining an additional and purer supply of water for Leeds, by E. Filliter, C.E.	Author.
Physiology of the Soul and Instinct as distinguished from Materialism, by Martyn Paine Paine's Institutes of Medicine, 9th Edition	Harper and Brothers, New York.
Proceedings of the Zoological Society of London for 1871	Zoological Society of London.
Journal of the Chemical Society for 1871...	Chemical Society.
Quarterly Journal of the Geological Society for 1871	Geological Society.
Australasian, 1871-2, Vols. XI., XII.	The Publishers.
Reports and Papers of Architectural Societies for 1870	Associated Architectural Societies.
35th Annual Report of the Warwickshire Natural History and Archæological Society.....	Warwickshire Natural History and Archæological Society.
Journal of the Royal Historical and Archæological Association of Ireland, I., Pts. 7, 8, 9, 10	Royal Historical and Archæological Association of Ireland.
Quarterly Returns of Marriages, Births, and Deaths in England, 1871-2	Registrar General.
Transactions and Proceedings of the New Zealand Institute, 1870, III.....	New Zealand Institute.
Proceedings of the Liverpool Literary and Philosophical Society, 1868-9, XXIII., and 1869-70, XXIV.	Liverpool Literary and Philosophical Society.
Proceedings of the Glasgow Philosophical Society, 1870-1, VII., 3	Glasgow Philosophical Society.

Catalogue of Ruminant Mammalia, by J. E. Gray Guide to select Greek Coins	Trustees of the British Museum.
Programme of Examinations for 1872. Journal of the Society of Arts	Society of Arts.
Annual Report of the Philosophical and Literary Society of Hull, for 1871	Hull Philosophical and Literary Society.
The Leader, 1871–2.	The Publishers.
Illustrated Australian News, 1871–2.	The Publishers.
Oversigt over det Kongelige Danske Videnskabernes Selskabs, 1870	Fra del Kongelige Danski Kjobenhoven.
The Radcliffe Observations, 1868, Vol. XXVIII.	The Radcliffe Trustees.
Annual Report of the Yorkshire Philosophical Society for 1870	Yorkshire Philosophical Society.
Journal of the Anthropological Institute, Vol. I., 1871	Anthropological Institute.
Proceedings of the Literary and Philosophical Society of Manchester for the Session 1871-2	Literary and Philosophical Society of Manchester.
Philosophical Transactions of the Royal Society, CLXI., 1871 Proceedings of the Royal Society, 1871-2... Correspondence concerning the Great Melbourne Telescope, 1852-70.....	Royal Society.
Abstract of the Proceedings of the Liverpool Geological Society, 1870-1.....	Liverpool Geological Society.
Proceedings of the Royal Institution, Vol. VI.	Royal Institution of Great Britain and Ireland.
Royal Astronomical Society: Monthly Notices, 1871-2 Memoirs, XXXIX, 1 A General Index of the first 38 volumes of the Memoirs	Royal Astronomical Society.
Yorkshire Archæological and Topographical Journal, pt. VI.....	Yorkshire Archæological and Topographical Association.
8th Annual Report of the Belfast Field Naturalists' Club, 1870-1	Belfast Field Naturalists' Club.
Report of Surgical Cases in the Army, United States, Circular No. 3	Surgeon General, Washington.
Journal of the Royal Dublin Society, Vol. V.	Royal Dublin Society.

Sanitary Report on Leeds, 1871	Dr. Robinson.
Proceedings of the Geologists' Association, II., 4, 5. Annual Report of ditto, 1871	Geologists' Association.
Proceedings of the Liverpool Philomathic Society, XVI., 1870-1.....	Liverpool Philomathic Society.
Transactions of the Royal Society of Edinburgh, XXVI. Proceedings of ditto, 1870-1	Royal Society of Edinburgh.
Monthly Notices of the Royal Society of Tasmania, 1870	Royal Society of Tasmania.
29th Annual Report of the Royal Polytechnic Society of Cornwall, 1871.....	Royal Polytechnic Society of Cornwall.
Journal of the Royal Institution of Cornwall, with the 54th Annual Report, XIII., 1872	Royal Institution of Cornwall.
Edinburgh Astronomical Observations, XIII., 1860–70	Her Majesty's Government.
Transactions of the Historic Society of Lancashire and Cheshire, N.S., vols. IX., X., 1868–9, 1869–70	Historic Society of Lancashire and Cheshire.
Mittheilungen der geographischen Gesellschaft in Wien, XIV., 1871.....	Imperial Royal Geographical Society of Vienna.
Proceedings of the Academy of Natural Sciences of Philadelphia, 1870.....	Academy of Natural Sciences of Philadelphia.
Journal of Anthropology, I.	Anthropological Society.

LIST OF OFFICERS AND COUNCIL,

1872-3

OFFICERS

President	Rev. Canon Woodford, D.D.
Vice-Presidents	J. D. Heaton, M.D., F.R.C.P. J. I. Ikin, F.R.C.S.
Treasurer	Henry Oxley.
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The above Officers, with the following Gentlemen, comprise

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J. Rawlinson Ford.
Rev. John Gott, M.A.
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John Manning.
Rev. J. H. McCheane, M.A.
T. W. Stansfeld.
Rev. H. Temple, M.A.
W. Sykes Ward, F.C.S.

General Curator and Assistant Secretary, Louis C. Miall.

LIST OF MEMBERS AND SUBSCRIBERS,

1871—2.

** Members deceased, whose shares have not been transferred.*

PROPRIETARY MEMBERS,

EXEMPT FROM ANNUAL SUBSCRIPTIONS.

W. Aldam	Frickley Hall, Doncaster.
William James Armitage	Farnley, near Leeds.
Robert Arthington	73, Hunslet Road.
John William Atkinson	Woodhouse Square.
Edward Baines, M.P.	St. Ann's Hill, Burley, near Leeds.
John Barran	Chapel-Allerton Hall, near Leeds.
James C. Battye	Yeadon, near Leeds.
*William Beckett	
J. D. Birchall	Bowden Hall, Gloucester.
Henry Broadhead	Chapel-Allerton, near Leeds.
James Brown (2 shares)	Rossington, Doncaster.
Samuel James Brown (2 shares)	Loftus Hill, near Knaresborough.
Miss Burton	Roundhay, near Leeds.
Edmund Calverley (2 shares)	Oulton Hall, near Leeds.
C. H. Charlesworth	Settle.
Henry Chorley	Park Square.
*Samuel Clapham (2 shares)	
William Coghlan	Granville House, Hyde Terrace.
John W. Cudworth	52, Mount Preston.
William Beckett Denison	Meanwood Park, near Leeds.
Thomas Townend Dibb	Little Woodhouse.
John Edwin Eddison, M.D.	29, Park Square.
John Ellershaw	Oakfield, Kirkstall, near Leeds.
Walter Ellershaw	3, Cromer Terrace.
Christopher Empson	Bramhope Hall, near Leeds.
Robert Lawson Ford	Adel Grange, near Leeds.
Thomas Willington George	Chapeltown, near Leeds.
*John Goodman.	
*John Gott (2 shares).	

Rev. John Gott, M.A. (2 shares) .	Bramley Parsonage, near Leeds.
William Ewart Gott (3 shares) .	Armley House, near Leeds.
Thomas Michael Greenhow, M.D.	Chapel-Allerton, near Leeds.
John William Heaps . . .	Terrace House, Chapeltown Road, near Leeds.
Charles Denison Heaps . .	Woodhouse Lodge, Woodhouse Lane.
John Deakin Heaton, M.D., F.R.C.P.	Claremont, Leeds.
William Hey, F.R.C.S. . . .	Gledhow Wood, near Leeds.
Joseph Hirst	Mount Cross, Bramley, near Leeds.
Walter Holdforth	Knaresborough.
Joseph Holt	Wedderburn House, Harrogate.
Abraham Horsfall . .	Whitkirk Manor House, near Leeds.
Constantine Ingham . . .	Clarendon Place.
William Ingham	Belmont, Chorley Lane.
John Jowitt	Harehills Grove, Potternewton, near Leeds.
William Glover Joy . . .	Headingley, near Leeds.
Thomas John Kinnear, M.A. .	Burley, near Leeds.
John Latimer	St. Mark's Villas, Woodhouse Lane.
Frederick John Leather . .	Leventhorpe House, near Leeds.
John Darnton Luccock . .	54, North Street.
Darnton Lupton	Harehills, Potternewton, nr. Leeds.
Francis Lupton	Beechwood, Roundhay, near Leeds.
Charles Makins	17, Craven's Hill, Regent's Park, London, N.W.
Edmond Henry Marshall . .	Weetwood Hall, near Leeds.
Henry Cowper Marshall . .	Do.
Arthur Marshall, F.G.S. . .	Headingley House, near Leeds.
J. G. Marshall, F.G.S. (2 shares) .	Do.
Victor Alexander Ernest Marshall, B.A.	Weetwood.
J. A. Nunneley, M.B. . . .	22, Park Place.
*Rev. J. Armitage Rhodes, M.A.	
John Rhodes	Potternewton House, near Leeds.
John Shepherd	Allenby House, Tadcaster.
*John Metcalfe Smith.	
Henry Stooks Smith . . .	Headingley, near Leeds.
George Tatham	Springfield Mount.
Thomas Greenwood Teale . .	Bentley House, Meanwood, near Leeds

Mrs. Teale	St. James's Lodge.
John William Tottie . . .	Coniston Hall, Bell Busk, nr. Skipton.
James Butler Waite . .	Belvidere House, New Leeds.
Edward Walker	15, Springfield Mount.
William Sykes Ward, F.C.S. . .	Denison Hall, Hanover Square.
*Richard Basset Wilson.	

NEW PROPRIETARY MEMBERS,

WITH AN ANNUAL SUBSCRIPTION OF ONE GUINEA.

Daniel Hopkin Atkinson . .	16, Brunswick Place.
Edward Atkinson, F.L.S., M.R.C.S.	2, Albion Place.
Frederick Baines . . .	Weetwood.
E. B. Wheatley Balme . . .	Cote Wall, Mirfield.
*William Beckett (8 shares).	
Joseph Brooks Bilbrough . .	15, Beech Grove Terrace.
Edward Birchall	7, Park Square.
W. Boothroyd	Grove Hill, Headingley, near Leeds.
William Brown (2 shares) . .	Bardon Grange, Weetwood, near Leeds.
George Buckton	Roundhay, near Leeds.
Joshua Buckton	Moor-Allerton, near Leeds.
Isaac Henry Burkill . . .	Allerton Hall, Chapeltown, near Leeds.
J. O. Butler	Abbey House, Kirkstall, near Leeds.
Charles Chadwick, M.D., D.C.L., F.R.C.P.	35, Park Square.
William Chadwick . . .	Arksey, Doncaster.
C. H. Charlesworth . . .	Settle.
Joseph Cliff	Wortley, near Leeds.
Mrs. Connor	Gledhow Hall, near Leeds.
W. H. Conyers	Oak Villa, Grosvenor Road, Headingley, near Leeds.
*John Cooper (2 shares).	
Joseph Craven	Clifton House, Beeston Hill, near Leeds.
John Crofts	Adel, near Leeds.
Capel Augustus Curwood . .	De Grey Terrace.
G. E. Donisthorpe . . .	Harrogate.
Sir Andrew Fairbairn, M.A. . .	Goldsborough Hall, Knaresborough.
James Farrer	Ingleborough House, Clapham, near Lancaster.

William Ferguson	Bank of Leeds, 25 Albion Street.
Edward Filliter, M.Inst., C.E., F.G.S.	West Mount House, Clarendon Rd.
*John Gott (10 shares).	
Thomas Hall	Heath Cottage, Moor Allerton, near Leeds.
James Hargrave	Willaston House, Harrogate.
*S. B. Hargreaves.	
William Harvey	1, Moorland Terrace.
Rev. W. G. Henderson, D.C.L. .	Grammar School.
*W. W. Hewitson.	
Samuel Hey, F.R.C.S. . . .	1, Albion Place.
*J. D. Holdforth.	
*W. B. Holdsworth.	
James Holroyd	Gledhow, near Leeds.
Rev. William Lee Howarth . .	Elmwood House.
Henry Hudson	Oakwood, Roundhay, near Leeds.
Robert John Hudson . . .	Burley-in-Wharfedale.
Charles Alfred Ingham . . .	Belmont, Chorley Lane.
Henry Constantine Ingham . .	Lyddon Terrace.
Robert Benson Jowitt . . .	Elmhurst, Potternewton, near Leeds.
Walker Joy	3½, Queen Square.
Thomas Stewart Kennedy . .	Meanwood, near Leeds.
James Kitson	Elmete Hall, Roundhay, nr. Leeds.
J. Hawthorne Kitson . . .	Hyde Terrace.
James Kitson, Jun. . . .	Headingley.
Frederick William Kitson . .	Burley, near Leeds.
Edward Latchmore	4, Ridge Mount, Cliff Road.
J. T. Leather	Leventhorpe Hall, near Leeds.
Henry Ludolf	Headingley Lane, near Leeds.
Arthur Lupton	Headingley, near Leeds.
Joseph Lupton	Chapel-Allerton, near Leeds.
John Lupton	Moorlands, Headingley, nr. Leeds.
Darnton Lupton, Jun. . . .	Harehills, Potternewton.
Francis Martineau Lupton . .	Beechwood, Roundhay.
Joseph Ogdin March . . .	Beech Grove House, Woodhouse Lane.
J. L. Margerison	4, Porchester Gate, Bayswater Road, London.
Thomas Marshall, M.A. . .	Highfield, Chapel-Allerton, nr. Leeds.
John Marshall, M.A. . . .	Bentley Lodge, Meanwood, nr. Leeds
Stephen Albert Marshall . .	Weetwood, near Leeds.

Edmund Maude	Middleton Lodge, Beeston, near Leeds.
George Meggeson . . .	6, Cromer Terrace.
J. Sagar-Musgrave . . .	Red Hall, Shadwell, near Leeds.
G. F. Naylor	Bond Street, Wakefield.
Richard Nickols	Bramley, near Leeds.
*Mrs. Nicholson, Roundhay (2 shares).	
A. G. Nunneley	10, Park Place.
Henry Oxley	Weetwood Villa, Weetwood Road, Far Headingley, near Leeds.
P. W. Passavant	De la Haye House, Chapeltown Rd.
William Nicholson Price, F.R.C.S.	7, East Parade.
Richard Reynolds, F.C.S. . .	Blenheim Square.
T. W. Stansfeld (2 shares) . .	Weetwood Grove.
G. M. Stewart	34, Fenton Street.
George Taylor	Buckingham House, Headingley, near Leeds.
*Samuel Taylor.	
T. Pridgin Teale, M.A., F.R.C.S. .	North Grange, Headingley, nr. Leeds.
Washington Teasdale . . .	Rosehurst, Headingley, near Leeds.
Robert Tennant	Scarcroft Lodge, Shadwell, nr. Leeds.
Thomas Tennant	21, Blenheim Terrace.
F. W. Tetley	Foxhill, Weetwood, near Leeds.
Richard Bickerton Turner . .	Bank of England, South Parade.
William Wailes	Harrogate.
William Watson	Elmwood, Harrogate.
John Whitaker (2 shares) . .	Abchurch Lane, London.
John Whiting	Regent Villas, Headingley, nr. Leeds.
Joseph Hartley Wicksteed . .	3, Eldon Terrace, Woodhouse Lane.
John Wilson	Seacroft, near Leeds.
Thomas Wilson, M.A. . . .	2, Hillary Place.
Richard Wood	Newton Villa, Potternewton, near Leeds.
Rev. Canon Woodford, D.D. .	The Vicarage, Park Place.

ORDINARY MEMBERS,

WITH AN ANNUAL SUBSCRIPTION OF TWO GUINEAS.

Rev. Charles John Armistead, M.A., F.S.A.	E. Armistead, Albion Street.
Joseph John Armistead . .	Cumberland Road.
J. H. Atkinson	14, East Parade.

*Matthew Bloome.	
Rev. T. S. Bowers, M.A.	Kirkstall, near Leeds.
Joseph Buckton	1, Moorland Terrace.
John Bulmer	4, Winfield Mount, Potternewton Lane.
William Cadman	Roundhay, near Leeds.
William Garlick	6, Hyde Terrace.
E. W. Hewitt	Ashfield, Headingley Hill, nr. Leeds.
Joshua Ingham Ikin, F.R.C.S.	19, Park Place.
Samuel Dickinson Martin	Meanwood Lane, Chapel-Allerton, near Leeds.
Josiah Ramskill, M.R.C.S.	13, Meadow Lane.
Rev. J. R. Stratten	Park Square.
W. E. Swaine	Highfield House, Woodhouse Lane.
Henry Marshall Sykes	Roundhay, near Leeds.

NEW ORDINARY MEMBERS,

WITH AN ANNUAL SUBSCRIPTION OF ONE GUINEA.

T. Clifford Allbutt, M.A., M.D., F.S.A., F.L.S.	Virginia Road.
Edward Manwaring Baines	6, Ashwood Terrace, Headingley Hill, near Leeds.
Frederick Horatio Barr	Mount View, Headingley Lane, near Leeds.
Mrs. Robert Barr	Mount Pleasant.
J. M. Barwick	Glen View, Shipley.
John Benson	20, Prince of Wales Terrace, Scarborough.
William Best	18, Lyddon Terrace.
W. T. Bolland	Hunslet Lane.
Joseph Booth	Grosvenor Road, Headingley Lane, near Leeds.
John Botterill	Flower Bank, Burley, near Leeds.
Charles Edward Bousfield	3, Beech Grove Terrace.
Riley Briggs	Springfield Mount.
Robert Meek Carter, M.P.	Woodhouse Lane.
George Clay	8, Blenheim Square.
George Corson	Far Headingley, near Leeds.
Edwin Dawson	17, Blenheim Terrace.
T. G. Denny	46, Burley Street.
J. W. Dixon	13, Vernon Road,

Frederick Eddison . . .	4, Woodsley Terrace, St. John's Hill.
Robert William Eddison . .	Headingley, near Leeds.
William Firth	Burley Wood House, near Leeds.
J. Rawlinson Ford . . .	Adel Grange, near Leeds.
T. B. P. Ford	Ilkley, near Leeds.
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Thomas Greenwood . . .	Ripon.
John Hargrave	St. Ann's Lodge, Burley, near Leeds.
John Hepper	Clareville, Headingley, near Leeds.
Henry Percy Holt . . .	Cavendish Road.
Joseph Holt	Wedderburn House, Harrogate.
Thomas Horsman, B.A. . .	3, High Royd, Belle Vue Road.
William Illingworth . . .	Headingley Cliff, near Leeds.
Tom Ingham	Belmont, Chorley Lane.
Edward Irwin	Preston House, Tonbridge Street.
Julius Irwell	Highfield House, Headingley, near Leeds.
*William S. Jackson.	
Arthur Kempe	29, Brunswick Terrace.
*Christopher Kemplay	
Joseph Lambert	Rose Court, Headingley Lane, near Leeds.
Thomas Lawson	Potternewton, near Leeds.
John Lawson	Beech Grove Hall.
J. W. Leather	Newton Green, Chapeltown, near Leeds.
William Ledgard	Eller Close, Roundhay.
Joseph Lupton	Armley, near Leeds.
John Manning	Weetwood, near Leeds.
Rev. J. H. McCheane, M.A. . .	Trinity Parsonage, Hyde Terrace.
George March	Oaklands, Scarcroft, near Leeds.
John William Middleton . .	Mount Terrace, Potternewton, near Leeds.
Herbert Ogle Morley . . .	Victoria Street.
William Beswick Myers . .	Gristhorpe, near Filey.
W. C. Myers	1, Gordon Villas, Woodhouse Lane.
Gustave Nathan	Cumberland Priory, Cumberland Road, Headingley, near Leeds.
Henry Nelson	St. John's Cottage, St. John's Road.

*Thomas Nunneley.	
George Henry Nussey . . .	St. Ann's Lane, Burley, near Leeds.
Obadiah Nussey	Morley House, Headingley, near Leeds.
Thomas Nussey	Virginia House, Headingley Hill, near Leeds.
Samuel Leathley Nussey . .	Potternewton Hall, near Leeds.
Peter Nussey	Apen Ing, Whitehall Road, Lower Wortley, near Leeds.
*R. E. Payne.	
S. H. Ramsbotham, M.D. . .	16, Park Place.
John Rayner	Lyddon Terrace.
Miss Read	Chapel-Allerton, near Leeds.
Thomas Riley	7, Blenheim Square.
Major Robinson	Scarborough.
Richard Robinson . . .	Ousthorpe Villa, Clarendon Road.
Miss Sharpe	21, Victoria Place, Camp Road.
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John Edward Smith . . .	Park Villas, Potternewton, nr. Leeds.
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James Stables	Horsforth, near Leeds.
*George Talbot.	
Rev. Henry Temple, M.A. . .	St. John's Vicarage, Woodhouse Lane
*Joseph Mason Tennant.	
Anthony Titley	Manor House, Victoria Grove, Headingley, near Leeds.
T. A. Titley	Headingley Hill, near Leeds.
J. W. Tottie	Coniston Hall, Bell Busk, nr. Skipton
Richard Townsley . . .	6, Springfield Mount.
John Wade	Moorland Road.
Thomas Walker	Headingley Hill, near Leeds.
Thomas Whiteley	Blenheim Square.
John Young	Moor Hill Farm, Headingley, near Leeds.

ANNUAL SUBSCRIBERS OF ONE GUINEA.

Henry Appleton	Moor Road, Far Headingley, near Leeds.
John Robert Asquith . . .	Bond Place.
J. W. Asquith	St. John's Terrace, Woodhouse.
Law Atkinson	Hanover Street.

Walter Baily	24, Hyde Terrace.
J. W. Baines	Oatlands, Burley.
W. H. Baldwin	Station Hotel, Normanton.
Charles Barran	Chapel-Allerton Hall, near Leeds.
John Barran, Jun. . . .	5, Cromer Terrace.
W. H. Bartholomew, C.E. . .	Albion Villas, New Leeds.
James Bedford	Woodhouse Cliff.
Mrs. Beverley	Grosvenor Terrace, Headingley, near Leeds.
Robert Beverley	Woodsley Terrace.
W. A. Beverley	17, St. John's Terrace.
Rev. John Bickerdike, M.A. . .	St. Mary's Vicarage, Beckett Street, Burmantofts.
Alfred Bilbrough	15, Beech Grove Terrace.
Godfrey Bingley	Headingley Lane, near Leeds.
Oswald Birchall	Kirkstall Grove, near Leeds.
Richard Bowlby	Westville, Potternewton, nr. Leeds.
Rev. E. J. Brailsford . . .	Churwell, near Leeds.
James Braithwaite, M.D. . .	Clarendon Road.
Richard Hale Braithwaite . .	Do.
J. C. Browne	Newton Lodge, Roundhay, near Leeds.
William Bruce	Moorland Terrace.
J. C. Buckley	10, Blenheim Terrace.
Richard Buckton	Cumberland Lodge, Headingley Hill, near Leeds.
Charles Bulmer	Blenheim Lodge.
Edmund Butler	Kepstorn.
John P. Calvert	3, Springthorpe Place.
Rev. J. Estlin Carpenter, M.A. .	7, Lifton Place.
Samuel Cash	Cliff Lodge, Woodhouse.
W. Chadwick	22, Moorland Road.
E. W. Chatwin	1, Willow Grove Road.
W. Cheetham	Woodbottom Cottage, Horsforth, near Leeds.
W. Clare, M.D.	Park Square.
Miss Clark	S. L. Nussey, Esq., Potternewton Lane, near Leeds.
J. W. Clay	Warwick Place.

Joseph Conyers	Castle Grove, Headingley, near Leeds.
William Cooke	Moorfield House, Moor Allerton, near Leeds.
Robert Craig	98, Briggate.
James Crawford	Chapel-Allerton, near Leeds.
Emmerson Crawford . . .	Messrs. Beckett & Co., Park Row.
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Miss M. A. Crosley . . .	33, Mount Preston.
John Cuthbert	4, Cookridge Street.
R. F. Daniel	31, Cromer Terrace.
Arthur Sladen Davis, M.A. . .	Grammar School.
Edward Davis	Alpha Cottage, Far Headingley, near Leeds.
William Dawson	Larchfield Mills, Hunslet Lane.
Alfred Denby	West Hill, New Leeds.
Rev. Thomas Robinson Dent, M.A.	
Robert Henry Dixon . . .	25, Virginia Road.
Henry Dixon	6, De Grey Road.
John Cass Dolan	North Hill Road, Headingley, near Leeds.
John Douglas	Beechwood, Oulton, near Leeds.
A. W. Dufton	74, Springfield Place.
John Eddison, C.E. . . .	1, Osborne Terrace, Virginia Road.
G. A. Emsley	Clarendon Mount.
Thomas Falcon	Pudsey, near Leeds.
Charles Fenwick	Allerton Hill, Chapel-Allerton, near Leeds.
Thomas Fenwick	Allerton Hill, Chapel-Allerton, near Leeds.
Francis Ferns	Cliff Road.
John Richard Flitch . . .	11, Westfield Terrace, Chapeltown, near Leeds.
Samuel Foster	2, Aked's Terrace, Woodhouse Moor.
Alfred M. Fowler, A.J.C.E. . .	Cumberland Road, Headingley, near Leeds.
James Fox, C.E.	Cookridge Grove, Adel, near Leeds.
Henry H. Franck	Bank of England, South Parade.
John Fraser	Grove House, Headingley, near Leeds.
Samuel Freeman	Newton Grove.

Robert Frost	7, Lyddon Terrace.
Thomas Galleway	Blenheim Terrace.
J. H. Gamble	Kendell Street.
J. W. Gaunt	Farsley, near Leeds.
W. B. George	Spring Gardens.
F. Glover	7, Beech Grove.
Charles Goodall	Francis Street, New Leeds.
Benjamin Goodman	Gledhow House, near Leeds.
Rev. E. S. Gough	Infirmary.
C. Granger	Newton Grove, Chapeltown Road, near Leeds.
John Greene	Whinmoor, near Seacroft.
F. Greenwood	School of Medicine, Park Street.
C. D. Haigh, B.A.	3, Woodsley Terrace.
William Hall	1, Hillary Place.
John Hallilay	Burley Road.
R. W. Hamilton	Cardigan Villas, Shaw Lane, Headingley, near Leeds.
Thomas Hammond	Hanover Square.
George Handcock	5, Leopold Mount, Chapeltown Road, near Leeds.
J. W. Harding	Hillary Lodge, Cavendish Road.
Charles Hargrave	Oxley Hill, Moortown, near Leeds.
Rev. F. L. Harrison	Vicarage, Burley, near Leeds.
Thomas Harvey	4, Moorland Terrace.
A. B. Hassé	Baildon, near Leeds.
Alfred William Heald	8, Springfield Mount.
A. R. Hebblethwaite	12, Blenheim Terrace.
J. W. Hebblethwaite, Jun.	Moor-Allerton Hall, near Leeds.
J. B. Heeles	Montpelier Terrace, Cliff Road, Woodhouse.
Henry Hewetson	St. John's Terrace.
Joseph Hezmalhalch	Thorner, near Leeds.
Rev. R. W. Hiley	Thorparch Grange, Tadcaster.
J. E. Hindle	Bramhope, near Leeds.
John William Hill, M.A.	Virginia Road.
M. S. Hill	30, Mount Preston.
C. Hirschhorn	
J. A. Hirst	Hyde Lodge, St. John's Hill.
Frederick Hobson	49, Briggate.
J. P. Hodgson	10, De Grey Terrace.

John Holmes	Methley, near Leeds.
Edward Holt	The Manor House, Farnley, near Leeds.
Walter Hudson	Grey Stone House, Adwalton, near Leeds.
William Huggon	50, Springfield Place.
Samuel Hurd	Leopold Mount, Chapeltown Road.
John Iredale	Gledhow Mount, Potternewton, nr. Leeds.
William Thomas Jackson . .	Headingley Hill, near Leeds.
S. Jefferson, F.C.S. . . .	25, Springfield Place.
Thomas Richardson Jeffery . .	54, Skinner Lane.
E. G. Jepson	8, Woodsley Terrace.
Miss Jowitt	5, Newton Grove, New Leeds.
Lomas Joy	Ridge House, Kingston Grove, Woodhouse Lane.
Thomas Kirkby	8, Beech Grove Terrace.
Frederick Kirkby	3, Springfield Mount.
James Kirk	Killingbeck Hall, near Leeds.
Arthur Knight	Queen's Place, Chapel-Allerton, nr. Leeds.
R. T. Land	Leopold Street, New Leeds.
Arthur T. Lawson . . .	Beech Grove.
Alexander Leadman . . .	St. Ives, Headingley, near Leeds.
W. Lee	8, Samuel Street, Camp Road.
James S. Loe	147, Woodhouse lane.
George Longbotham . . .	21, Park Square.
Arthur G. Lupton	Beechwood, Roundhay, nr. Leeds.
Edward Arthur Lupton . . .	4, Blenheim Terrace.
H. R. Marsden	15, De Grey Terrace.
W. E. Marshall	1, Beech Grove Terrace.
W. W. Matheson	8, Hyde Terrace.
Miss Matterson	8, Cavendish Road.
Miss Maude	Knowsthorpe House, near Leeds.
William Middleton . . .	Gledhow Grange, near Leeds.
Major Moore	3, Woodhouse Square.
John Moxon	New Leeds.
Albert Musgrave	Belle Vue Road.
J. W. Naylor	Allerton Hill, Chapeltown, nr. Leeds.
J. S. Newstead	Headingley, near Leeds.
John Edward Pawson . . .	Lawn's House, Farnley, near Leeds.

John Thomas Pearson . . .	Weetwood Road, Far Headingley, near Leeds.
G. B. Pearson	Headingley, near Leeds.
John Pickering	13, Springfield Mount.
Edward Pope	Farfield, Moor-Allerton, near Leeds.
R. Pope	Clarendon House.
William Powell	13, Park Place.
Henry W. Price	Park Square.
John Ralph	1, Brunswick Place, North Street.
George Rayner	Hyde Gardens, Clarendon Road.
John Redmayne	Chapeltown, near Leeds.
J. W. Reffitt	Hanover Street.
Freshfield Reynolds . . .	13, Briggate.
F. S. Richards, U.S.A. Consul .	2, Queen Street.
G. H. L. Rickards . . .	7, Moorland Road.
James Rider	4, High Royd, Belle Vue Road.
Alfred Robinson	49, Lofthouse Place.
Thomas Robinson . . .	Castleton Lodge, Armley, nr. Leeds.
Charles S. Rooke	Newton Hill, Potternewton, near Leeds.
R. L. Rooke	Newton Hill, Potternewton, near Leeds.
Walter Rowley, C.E. . . .	Headingley, near Leeds.
Charles Ryder	Regent Villas, Headingley, nr. Leeds.
H. H. Sales	17, Hyde Park Terrace, Headingley, near Leeds.
George Salt	Saltaire, near Bradford.
Rev. J. Pledger Seabrooke, LL.B., B.A.	Kirkstall, near Leeds.
Thomas Scattergood . . .	41, Park Square.
James Seaton	Wintoun House, North Street.
Joseph Shackleton . . .	Wortley, near Leeds.
W. D. Skelton	9, St. George's Terrace, Camp Road.
Edward James Smith . . .	Grosvenor Terrace, Headingley, near Leeds.
Stephen Ernest Smith . . .	Gordon Villas, Woodhouse Lane.
John Wales Smith . . .	2, Gordon Villas, Woodhouse Lane.
Mrs. Henry Smith . . .	Highfield, Headingley, nr. Leeds.
Rev. F. G. H. Smith . . .	Armley, near Leeds.
Henry Snowdon	12, Claypit Lane.
Rev. R. K. Snowdon . . .	Chapel-Allerton, near Leeds.

John Stocks	Station Parade, Harrogate.
John Swaine	North Hill Road, Headingley Hill, near Leeds.
Thomas Sturgeon	Burley Mount, near Leeds.
Alfred W. Sykes	Cookridge, near Leeds.
Joseph Thackray	Headingley, near Leeds
A. H. Thompson	51, Tonbridge Street.
Vincent T. Thompson . . .	High Royd, Belle Vue Road.
Edwin Thorne	Grove Terrace, Camp Road.
H. A. Thorne	14, Cobourg Street.
George John Tiffany . . .	17, Grove Terrace.
William Todd	Blundell Place.
Miss Tootal	St. Mary's Mount.
H. G. Trumble	Harrogate.
Joseph Turner	2, Francis Street, New Leeds.
William Walker	Hanover Square.
Leasowe Walker	Brunswick Place.
James Walker	5, High Royd, Belle Vue Road.
James Walker	3, Wesley Place, Headingley, near Leeds.
Henry Walker	4, Woodhouse Square.
Joseph Walley	14, Eldon Terrace.
Samuel Walley	8, Eldon Terrace.
William Ward	Manor House, Churwell, nr. Leeds.
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THE

FIFTY-THIRD REPORT

OF

THE COUNCIL

OF THE

LEEDS

PHILOSOPHICAL & LITERARY

SOCIETY

AT THE

CLOSE OF THE SESSION 1872-73

Read at the Annual Meeting, May 6th, 1873

LEEDS
PRINTED BY McCORQUODALE & CO., BANK STREET
MDCCCLXXIII

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RESPECTING THE PROPERTY OF THE SOCIETY

PASSED OCTOBER 8TH, 1860

That in the event of a dissolution of this Society, its Property and Effects, whether real or personal, shall not be disposed of for the personal benefit of the Members, but shall be appropriated in such manner for the advancement of Science, Literature, or Art, in the town of Leeds, as shall be determined by a majority of the Members at an extraordinary Meeting to be convened for that purpose. But that no dissolution of the Society shall take place without the consent, in writing, of a majority holding not less than two-thirds of the Proprietary Shares.

FORM OF A BEQUEST TO THE SOCIETY

Every person desirous of bequeathing to the Society any sum of Money, Specimens, Books, Instruments, or other Property, is requested to make use of the following Form :—

I give and bequeath to the Trustees for the time being of the Society established at Leeds, called "THE LEEDS PHILOSOPHICAL AND LITERARY SOCIETY," *for the use of the said Society, the sum of , to be paid out of such part of my personal Estate as I may legally charge therewith.* [Or here enumerate the Effects or Property intended to be bequeathed]. *And I direct that the Receipt of the Treasurer of the said Society for the time being, shall be an effectual discharge to my Executors for the said Legacy.*

REPORT OF THE COUNCIL

AT THE CLOSE OF THE

FIFTY-THIRD SESSION

THE Council have the satisfaction of reporting that a small increase has taken place in the class of Subscribers to the society. Seventy-four new names have been elected during the past year, whilst the total loss from death, removal, and resignation has been sixty-four.

By the renewed liberality of Thomas Emsley, Esq., of Burley-in-Wharfedale, another donation of £10 has been placed at the society's disposal.

The ordinary income of the society is only adequate to its current expenditure, and the extension of the various parts of the Museum is dependent upon donations either of money or specimens. Those who may generously place such means at the disposal of the Council, may rely upon their effective application towards this important object.

The following is a list of the Lectures delivered before the society during the past Session :—

1. "Literary Life at the beginning of the Eighteenth Century." The President, Rev. Canon Woodford, D.D. *Read Oct. 22nd*, 1872.
2. "Hill and Valley Sculpture." Archibald Geikie, LL.D., F.R.S., Professor of Geology in the University of Edinburgh. *Read Nov. 5th*, 1872.
3. Second Lecture. Professor Archibald Geikie. *Read Nov. 7th*, 1872.
4. The Conversazione. *Held Nov. 19th*, 1872.
5. "The Meteorology of the Sun in connection with that of the Earth." Balfour Stewart, LL.D., F.R.S., Professor of Natural Philosophy at Owens College, Manchester. *Read Dec. 3rd*, 1872.
6. "Radiant Light and Heat." Professor Balfour Stewart. *Read Dec. 10th*, 1872.

7. "The two Pitts." J. R. Seeley, M.A., Professor of Modern History in the University of Cambridge. *Read Dec. 17th*, 1872.
8. "Mental Dietetics." J. Crichton Browne, M.D. *Read Jan. 7th*, 1873.
9. "The Sense of Hearing." Michael Foster, M.D., F.R.S., Professor of Physiology in the University of Cambridge. *Read Jan. 21st*, 1873.
10. "The Christian Catacombs of Rome." The Very Rev. A. P. Stanley, D.D., Dean of Westminster. *Read Jan. 29th*, 1873.
11. "The Primitive Social Condition of Man." E. B. Tylor, F.R.S. *Read Feb. 4th*, 1873.
12. "The History of Printing," with Illustrations of early printed books. Rev. John Gott, M.A. *Read Feb. 11th*, 1873.
13. "Shakspeare—an attempt to place in order of merit the four greatest plays." Rev. M. W. Mayow, M.A. *Read Feb. 18th*, 1873.
14. "The Exploration of Moab." Rev. Canon Tristram, LL.D., F.R.S. *Read Mar. 4th*, 1873.
15. "On some new Phenomena associated with Magnetism." W. F. Barrett, F.C.S. *Read Mar. 18th*, 1873.
16. "Art, in its relations to Civilisation, Wealth, National Progress, and Morality." George Redford, F.R.C.S. *Read April 1st*, 1873.

On the afternoons of January 14th and 16th respectively, Mr. L. C. Miall delivered two juvenile Christmas lectures, on the following subjects: "The Noah's Ark," being a description of the toy so named; and "The Humming Top."

The Educational Lectures established in previous years have been succeeded during this session by a course of eight lectures on Animal Physiology, by Dr. J. E. Eddison. An average attendance of about sixty persons gave evidence of the appreciation of definite instruction in scientific subjects. Much careful attention was given to demonstration, by means of dissections, microscopic preparations, &c.

The annual conversazione was held on November 19th. The special feature of the evening's entertainment was Mr. Tegetmeier's lecture on the "Homing or Carrier Pigeon," illustrated by numerous prize birds of different breeds, apparatus of various kinds used in the training of pigeons, and

lime-light enlargements of collodion messages sent into Paris during the recent siege. Of the other objects provided for exhibition during the evening, a large number were intended to illustrate the two practical arts of printing and telegraphy. Through the kindness of Mr. E. J. Smith, Postmaster for Leeds, seven different kinds of telegraphic instruments were shown in operation, and by the help of frequent explanation from assistants, a clear idea of the process of transmitting messages and printing them automatically could be obtained. In another room were exhibited printing-presses of various constructions, lithographic presses, a paging machine, stamping machines, and other working typographic and lithographic machinery. The principle of selecting certain subjects to receive special attention on these occasions may perhaps be usefully adopted in the future. The collections displayed in the Library comprised a number of rare and interesting examples of early printed books and manuscripts, lent by the Rev. John Gott, of Bramley; a valuable series of gold coins, contributed by Mr. Arthur Briggs, of Rawden; and a large number of autographs, exhibited by Mr. John Darlington and the Rev. H. F. St. John. The remainder of the available space was occupied by pictures and miscellaneous objects of interest.

Much progress has been made in the rearrangement of the Museum. In their last annual report, the Council stated that the departments of British Birds and Minerals had been put into satisfactory order. During the past year, the curator, Mr. L. C. Miall, has given close attention to the larger task of rearranging the comprehensive and valuable collection of Fossils. The whole of these have been carefully gone over, more fully named (printed labels being, to a great extent, substituted for the written ones), and mounted upon tablets of wood or pasteboard, coloured in such a way

as to indicate the zoological position of the specimens. The series of Carboniferous Fossils has, for the first time, received names. The collection of Cave Remains has been mounted and named, Mr. W. Boyd Dawkins having kindly given advice upon the subjects. Mr. Miall has prepared a series of about fifty descriptive notices, elucidating special points in relation to fossils, and for valuable aid towards this undertaking, the Council wish to record their thanks to Mr. William Pengelly, F.R.S., Mr. W. Boyd Dawkins, F.R.S., and Mr. H. B. Brady, F.L.S. These descriptions have been printed upon cards, and introduced at appropriate places in the collection of fossils. They have also served to form an important part of a Descriptive Guide to the Fossil Collection, which has been prepared by Mr. Miall. This Guide is just ready for issue at the price of 1*d.* per copy. The Council trust that it may meet with as favourable a reception as the guide to the mineral collection published a year since, of which 650 copies have been sold. The curator's attention is now being given to the invertebrate collection. The models of Foraminifera have been rearranged, and new printed labels substituted. The series of Protozoa, Cœlenterata, and Crustacea are now ready. For the illustration of details which cannot be indicated by the natural specimens, about twenty-five mounted drawings have been introduced into the cases.

The admissions to the Museum by payment have been 44,467, the largest number on record. In 1871-2 the number was 42,221.

One of the most important events in its bearing upon the local interests of science, has been the introduction of a scheme for establishing a Yorkshire College of Science. Towards this proposal the Council could only feel the greatest cordiality, and they recorded this feeling in the following resolution :—" That the Council have heard

with much satisfaction of the proposal for the formation of a Yorkshire College of Science, regarding it as an object of great public importance and utility, in which they hope to co-operate by such means as may be within their power."

By the kindness of a member of the society the Council is enabled to offer a prize of £5 in books or instruments for the best practical work in natural history or geology. Competitors must be not more than 21 years of age, and be members either of this society, of the Denny Club, or of the Leeds Field Naturalists' Club. A prospectus of the subjects, from which selection may be made, has been printed.

Summary of Meteorological Observations taken at the Philosophical Hall, Leeds, during the year, 1872.

1872.	Mean Temperature.	Mean Height of Barometer.	Total Amount of Rain in Inches.
January	40·8 Fah.	29·374	3·405
February	43·9 ,,	29·609	2·350
March	44·5 ,,	29·605	2·288
April	47·8 ,,	29·740	3·330
May	50·9 ,,	29·734	1·274
June	59·2 ,,	29·685	4·562
July	66·7 ,,	29·755	5·585
August	61·4 ,,	29·808	2·229
September	56·4 ,,	29·599	4·077
October	47·5 ,,	29·502	4·225
November	44·6 ,,	29·497	4·148
December	41·0 ,,	29·376	3·178

The mean monthly temperature was 50·4°.

The mean monthly height of the barometer was 29·607 inches.

The total rainfall for the year was 40·651 inches.

The greatest degree of heat, as indicated by the thermometer in the sun, was 106° on July 4, 21, and 22, and on August 18; the greatest in the shade was 93° on July 22; and minimum 25° on March 26.

The greatest barometric pressure was on the 6th April, being 30·376 inches, the temperature of the mercury being 56°; the least pressure was on January 24, being 28·268 inches, the temperature of the mercury being 52°.

The greatest fall of rain was on July 12, being 1·47 inches.

Latitude, 53° 48′ 20″ N.; longitude, 1° 33′ W. Height of the cistern of the barometer above the mean level of the sea, 137 feet; height of the rain gauge above the street, 46 feet.

LEEDS PHILOSOPHICAL AND LITERARY SOCIETY

STATEMENT OF RECEIPTS AND EXPENSES FOR THE YEAR 1872-3

RECEIPTS.	£	s.	d.	£	s.	d.
To Curator's Balance	95	15	4			
				95	15	4
Subscriptions of—						
To New Proprietary Members, at 21*s.* ...	86	2	0			
,, New Ordinary Members, at 21*s.* ...	77	14	0			
,, Old Ordinary Members, at 42*s.* ...	31	10	0			
,, Old Annual Subscribers, at 21*s.* ...	202	13	0			
,, New Annual Subscribers, at 21*s.* ...	40	19	0			
,, Old Annual Subscribers, at 5*s.* ...	63	0	0			
,, New Annual Subscribers, at 5*s.* ...	13	2	6			
				515	0	6
,, Rent of Cellars	50	0	0			
,, Rents of Lecture Room	101	19	0			
				151	19	0
,, Receipts for the Museum	185	5	7			
,, Receipts for the Conversazione ...	13	5	0			
				198	10	7
,, Receipts for Science Classes	11	10	6			
				11	10	6
,, Sale of Descriptive Guides	3	1	4			
				3	1	4
				975	17	3
,, Balance due to Bank				145	18	4
				£1,121	15	7

DISBURSEMENTS.	£	s.	d.	£	s.	d.
By Balance due to Bank, July 1st, 1872	113	17	11			
				113	17	11
,, Repairs	47	10	5½			
,, Taxes and Rates	2	19	8			
,, Insurance	13	15	0			
,, Coals	21	14	0			
,, Gas	18	13	4			
,, Cleaning the Hall	0	14	0			
				105	6	5½
,, Salaries—Curator's	250	0	0			
,, ,, Assistant Curator's ...	37	0	0			
,, ,, Porter's	64	19	6			
				351	19	6
,, Collections—Geological	13	19	6			
,, ,, Zoological	46	6	9			
,, ,, Archæological	2	10	6			
,, ,, Library	23	10	4			
				86	7	1
,, Science Classes	10	2	3			
				10	2	3
,, Postages	21	10	5			
,, Printing and Advertising	110	1	4			
,, Lectures	128	2	11			
,, Conversazione	57	13	0			
,, Commission to Collector	11	12	0			
,, Bankers' Commission	9	12	0			
,, Sundries	45	6	7			
				383	18	3
				1,051	11	5½
,, Balance—Curator's	70	4	1½			
				70	4	1½
				£1,121	15	7

LIST OF DONATIONS AND ADDITIONS

TO THE

SOCIETY'S MUSEUM AND LIBRARY

1872–3

GEOLOGY AND MINERALOGY

Slab of Shale containing Unios	Mr. Thomas Greenwood, Beeston
Specimens of Pebbles and contained Fossils, from the Conglomerate of Budleigh Salterton	Mr. Edward Atkinson, F.L.S.
Slide of Polycystina, from Tertiary Deposits, Barbadoes	Mr. H. B. Brady, F.L.S., Newcastle-on-Tyne,
9 Specimens of Diplopterus and other Devonian Fishes 44 Specimens of Ananchytes and Micraster, from the Drift of Norfolk Casts of Belemnites, Terebratula, and Ventriculites in Chalk Flints Goniatites reticulatus, from Yoredale Rocks, Hebden Bridge	Mr. A. W. Morant, Borough Engineer
Flints containing Microscopic Fossils Specimens of Orthoceras and Posidonomya Becheri, Goldf. from Millstone Grit (Cayton Gill Beds), near Markington ...	Rev. J. S. Tute, B.A.
Rock Specimens, Minerals, and Fossils, from Crummack and Austwick	Prof. T. McK. Hughes, M.A.
Eozoönal Serpentine, from Connemara, Ireland Eozoön Canadense, Petite Nation, Nova Scotia	Mr. H. B. Brady, F.L.S.
Tusk of Mammoth (Elephas primigenius), dredged off the Yorkshire coast, 1826 ...	Purchased.
Pholidophorus Bechei, Lyme Regis	Purchased.
Specimens of Trinidad Asphalt, containing recent and fossil shells	Mr. J. A. Hirst.

Specimen of Palladium	Mr. W. Sykes Ward, F.C.S.
Mass of Hematite, Specular Iron, and Rock Crystal	Mr. John Holmes.
Piece of Volcanic Scoria	Mr. Buchan.
A Rough Diamond in the matrix, from the Cape of Good Hope	Mr. W. Hartley, Port Natal.
A collection of Precious Stones, including— Topaz (2 rough, 2 cut) Cat's Eye Turquoise (3 specimens) Diamond Moonstone Spinel Ruby Jargoon Amethyst (2 specimens) Heliotrope Precious Opal (2 specimens) Lapis Lazuli Garnet (3 specimens) Sapphire White Sapphire Red Carnelian White Carnelian Mocha Stone Ruby (4 specimens) Pink Topaz Emerald (1 rough, 1 cut) Malachite (2 specimens)	Dr. O'Callaghan, LL.D., D.C.L., Leamington.
Five specimens of Specular Iron (Hematite), from Gellivara, Sweden	Col. Gascoigne.

ZOOLOGY AND BOTANY

Pair of Marmozets	Mr. Boswell.
Distorted Fowl's Egg	Mr. Jowitt, Shipley.
Slide of Nummulina planulata, Lamk. Fiji	Mr. H. B. Brady, F.L.S., Newcastle-on-Tyne.
Specimen of Green Monkey	Mr. Thomas Clapham.
One large Bahama Sponge and 5 Smyrna Sponges (4 on rock)	Messrs. H. Marks & Sons. through Mr. F. Reynolds,
Snake-eater, or Goa Samp	Mr. H. Beverley, M.A., H.M. Bengal Civil Service.
Living Specimens of Alcyonella fungosa, Fresh-water Polyzoon	Mr. J. Abbot.
Cranium of Beaver, from Wawne	Purchased.

Skull and Horns of Red Deer, from Holderness	Purchased.

ARCHÆOLOGY AND ETHNOLOGY

Engine for cutting the teeth of watch wheels (16th century)	Exec. of late Richd. Westerman.
Old Padlock	Mr. Thomas Greenwood, Beeston.
Slab of Marble, inlaid with Arabesque pattern in coloured cement, from Damascus	Mrs. Marshall, late of Bond Street, Leeds.
Rubbings from 96 Monumental Brasses ...	Mr. A. W. Morant, Borough Engineer.
Knotted Strings, by which the Census was taken in the Southal country (Report of Census, p. 35)	Mr. H. Beverley, M.A., H.M. Bengal Civil Service.
Esquimaux Weapon, shaped out of a Walrus Tusk	Purchased.
Bronze Celt	Purchased.
Stone Hammer Head, from Sheriff Hutton	Purchased.

TECHNOLOGY

Maple Sugar (sample).....	Mr. H. B. Brady, F.L.S., Newcastle-on-Tyne.
Collection of Foreign Woods, each specimen cut or turned in five different ways, so as to shew its appearance and capabilities...	Mr. W. Sykes Ward, F.C.S.
Specimens of Stick Lac	Mr. J. A. Hirst.
Piece of Asbestos Cloth.....	Purchased.

PUBLICATIONS

Grave Mounds and their Contents, by Llewellyn Jewitt	Mr. John Holmes.
Project of an Instrument for the Identification of Persons, by Joseph Bonomi	The Author.
Dr. Adam Clarke's Account of all the English Translations of the Greek and Roman Classics A Sketch of the History of Leeds from Prehistoric Times to A.D. 1872, by John Holmes, Esq.	Mr. John Holmes.

Catalogue of the Willett Collection of Fossils in the Brighton Museum Papers relating to the Sub-Wealden Exploration	Mr. E. H. Willett, Brighton.
Notice of the Discovery of Remains of the Elk in Berwickshire, by John Alexander Smith, M.D. (From Proceedings of Society of Antiquaries, IX., 1870-1)	The Author.
Reliquiæ Aquitanicæ, Part XI.	Exec. of the late Henry Christy, Esq.
Report of the Census of Bengal, 1872	Mr. H. Beverley, M.A., H.M. Bengal Civil Service.
Thackrah's Introductory Discourse delivered to the Leeds Philosophical and Literary Society, April 6, 1821.....	Mr. Edward Atkinson, F.L.S.
Photographs and a Printed Notice of a Skeleton of Apteryx Australis	Mr. T. Allis, York.
Actstukker vedkommende de ved Universitetet anordnede Lœrereramina Cantate Mindefest for Hans Majestæt Kong Carl den 19 de November, 1872 Trondhjems Stifts geologi, af Th. Kjerulf De Romanske Sprog og Folk Om den Gruppe af Substitutioner der tilhorer Ligningen for Division af Perioderne ved de elliptiske Funktioner, af L. Sylow Ny Interpolationsmethode, af J. J. Astrand Om Ligningen af 3die Grad, af Dr. A. S. Guldberg Ueber eine Classe geometrischer Transformationen, von Sophus Lie Over en Classe geometriske Transformationer, af Sophus Lie Hardangerfjordens Fauna. I. Crustacea, af G. O. Sars Bidrag til Legemernes Molekylartheori, af C. M. Guldberg Meddelelser fra Universitetets kemiske Laboratorium, ved P. Waage Om Lavoisier og den Franske Chemi, af Th. Hiortdahl Forekomster af Kise i Visse Skifere i Norge, af A. Helland.....	Royal University of Norway, Christiania.

Results of five years' Meteorological observations at Hobart Town, together with the results of twenty-five years' observations previously published, by F. Abbott, F.R.A.S.	Royal Society of Tasmania.
Smith's British Diatomaceæ Pritchard's Infusoria	Purchased.
Catalogue of the Library of the the Zoological Society, 1872 Revised List of Vertebrated Animals in the Zoological Gardens, 1872	The Zoological Society.
Geological Survey of Montana and the adjacent Territory, 1871.....	The Directors of the U.S. Geol. Survey.
Ye Abbott o' Canterburie, a merry storie...	Mr. S. L. Nussey.
Murchison's Siluria Jukes and Geikie's Manual of Geology ...	Purchased.
Catalogue of Hemiptera Heteroptera, Parts V, VI, VII. Appendix to Catalogue of Shield Reptiles, I. Hand List of Shield Reptiles Catalogue of Syriac MSS., III.	Trustees of the British Museum.
3 Copies of tri-daily Weather Bulletins and Weather Maps for the benefit of Commerce and Agriculture, issued by U.S. War Department.....	Mr. A. J. Myer, Brigadier General and Chief Signal Officer, U.S. Army.
A Synopsis of British Mosses, by C. P. Hobkirk	
Life of Count Rumford Works of Count Rumford, Vol. I.	American Academy of Arts and Sciences.
2nd, 3rd, and 4th Annual Reports of Indiana Geological Survey	Mr. E. T. Cox, State Geologist, Indiana, U.S.A.
Special Report on Immigration, 1872 (2 copies).....	E. Young, M.D., Chief of U.S. Bureau of Statistics.
Monthly Reports of the U.S. Department of Agriculture for 1871 Report of the U.S. Commissioner of Agriculture for 1870	U.S. Department of Agriculture.
Geology of Neighbourhood of Kirby Lonsdale and Kendal.....	Director General of the Geological Survey.
Microscopical Journal, Vol. I., O. S., to Vol. III., N. S.	Purchased.

Journal of the Society of Arts, from July 5 to Dec. 27, 1872 Programme of Examinations for 1873	Society of Arts.
Proceedings and Communications of the Essex Institute, vol. VI, pt. III, 1868-71	Essex Institute.

PERIODICALS

WEEKLY

Nature	Purchased.
Leader (Australian Newspaper)	Publishers.
Australasian	Publishers.

MONTHLY

American Journal of Science and Arts Annals and Magazine and Natural History Geological Magazine	Purchased.
Illustrated Australian News	Publishers of the "Leader."
Monthly Notices of the Proceedings of the Royal Society of Tasmania	Royal Society of Tasmania.
Journal of the Chemical Society	Chemical Society.
Bulletin of the Essex Institute	Essex Institute, U.S.A.
Monthly Notices of the Royal Astronomical Society	Royal Astronomical Society.

QUARTERLY

Quarterly Journal of Science Quarterly Journal of Microscopical Science	Purchased.
Quarterly Journal of Geological Society ...	Geological Society.
Quarterly Returns of Marriages, Births, and Deaths	Registrar General.
Journal of the Royal Historical and Archæological Association of Ireland	Royal Historical and Archæological Association of Ireland.
Journal of the Anthropological Institute ...	Anthropological Institute.

ANNUALLY

Philosophical Transactions	Purchased.
Proceedings of the Geologists' Association	Geologists' Association.
Mineral Statistics of the United Kingdom..	Director General of the Geological Survey.
Communications to the Yorkshire Philosophical Society	Yorkshire Philosophical Society.
Proceedings of the Glasgow Philosophical Society	Glasgow Philosophical Society.

Mittheilungen der kais. und königl. geographischen Gesellschaft in Wien	Royal Imperial Geographical Society of Vienna.
Proceedings of the Academy of Natural Sciences of Philadelphia.....	Academy of Natural Sciences of Philadelphia.
Radcliffe Astronomical and Meteorological Observations	Radcliffe Trustees.
Proceedings of the Royal Society of Edinburgh Transactions of do.	Royal Society of Edinburgh.
Publications of the Ray Society.....	Purchased.
Abstract of the Proceedings of the Liverpool Geological Society	Liverpool Geological Society.
Transactions of the Edinburgh Geological Society	Edinburgh Geological Society.
Kongliga Svenska Vetenskaps Akademiens Handlingar ..... Do. do. Lefnadsteckningar Öfversigt af Kongliga Vetenskaps Akademiens Förhandlingar	Royal Swedish Academy of Sciences.
Natural History Transactions of Northumberland and Durham	Natural History Society of Northumberland, Durham, and Newcastle-upon-Tyne, and Tyneside Naturalists' Field Club.
Proceedings of the Berwickshire Naturalists' Club.....	Berwickshire Naturalists' Club.
Publications of the Palæontographical Society.....	Purchased.
Oversigt over det Kongelige Danske Videnskabernes Selskabs Forhandlinger.....	Royal Danish Society of Sciences.
Proceedings of the Liverpool Literary and Philosophical Society	Liverpool Literary and Philosophical Society.
Proceedings of the Boston Society of Natural History Memoirs of do.	Boston Society of Natural History.
Transactions of the Historic Society of Lancashire and Cheshire	Historic Society of Lancashire and Cheshire.
Memoirs of the Royal Astronomical Society	Royal Astronomical Society.
Greenwich Observations.....	Lords of the Admiralty.
Transactions and Proceedings of the New Zealand Institute.....	New Zealand Institute.
Proceedings of the Warwickshire Naturalists' and Archæologists' Field Club	Warwickshire Naturalists' and Archæologists' Field Club.

Annual Report and Papers of the Associated Architectural Societies	Associated Architectural Societies.
Journal and Annual Report of the Royal Institution of Cornwall	Royal Institution of Cornwall.
British Association Report	British Association.
Annual Report of the Royal Cornwall Polytechnic Society	Royal Cornwall Polytechnic Society.
Annual Report of the Smithsonian Institution	Smithsonian Institution.
Annual Report of the Yorkshire Philosophical Society	Yorkshire Philosophical Society.
Annual Report of the Warwickshire Natural History and Archæological Society	Warwickshire Natural History and Archæological Society.
Annual Report of the U.S. Patent Office	United States Patent Office.
Annual Report of the Hull Literary and Philosophical Society	Hull Literary and Philosophical Society.
Annual Report of the Belfast Naturalists' Field Club	Belfast Naturalists' Field Club.
Annual Report of the Liverpool Free Public Library, Museum, and Schools	Free Library, Liverpool.
Annual Report of the Geologists' Association	Geologists' Association.
Annual Report on the Sanitary Condition of Leeds	Medical Officer of Health for Leeds.
Annual Report of the Minnesota Historical Society	Minnesota Historical Society.
Annual Report of the Museum of Comparative Zoology at Harvard College, U.S.A.	Museum of Harvard College, Cambridge, Mass.

Zeitschrift für Wissenschaftliche Zoologie (4 pts. a year)	Purchased.
Canadian Journal (3 or 4 pts. a year)	Canadian Institute, Toronto.
Yorkshire Archæological and Topographical Journal	Yorkshire Archæological and Topographical Association.
Proceedings of the Royal Society	Royal Society.
Smithsonian Miscellaneous Collections Do. Contributions to Knowledge	Smithsonian Institution.
Proceedings of the Manchester Literary and Philosophical Society (about fortnightly, Oct. to April)	Manchester Literary and Philosophical Society.

Journal of the Royal Dublin Society (about once a year)	Royal Dublin Society.
Proceedings of the Royal Institution (2 pts. a year)	Royal Institution of Great Britain and Ireland.
Proceedings of the Zoological Society (3 pts. a year—May, Oct., March) Index to ditto (1861-70)	Zoological Society.
Journal of the Architectural, Archæological, and Historic Society of Chester	Architectural, Archæological, and Historic Society of Chester.
Edinburgh Astronomical Observations	Royal Observatory, Edinburgh.
Transactions of the American Philosophical Society Proceedings do. (several pts. a year)	American Philosophical Society.
Abridgements of Specifications of Patents, with Indices	Commissioner of Patents.

LIST OF OFFICERS AND COUNCIL,

1873-4.

OFFICERS

President	Rev. Canon Woodford, D.D.
Vice-Presidents	J. D. Heaton, M.D., F.R.C.P. J. I. Ikin, F.R.C.S.
Treasurer	Henry Oxley.
Honorary Secretaries	Thomas Wilson, M.A. Richard Reynolds, F.C.S.
Honorary Curator in Geology ...	J. G. Marshall, F.G.S.
Honorary Curators in Zoology ...	Edward Atkinson, F.L.S. T. Clifford Allbutt, M.D., F.L.S.
Honorary Curator in Ethnology and Archæology	J. E. Eddison, M.D.
Honorary Librarian	J. D. Heaton, M.D., F.R.C.P.

The above Officers, with the following Gentlemen, comprise

THE COUNCIL

Charles Chadwick, M.D., D.C.L., F.R.C.P.
Edward Filliter, C.E., F.G.S.
J. Rawlinson Ford.
Rev. John Gott, M.A.
Francis Martineau Lupton.
John Manning.
Rev. J. H. McCheane, M.A.
T. W. Stansfeld.
Rev. H. Temple, M.A.
W. Sykes Ward, F.C.S.

General Curator and Assistant Secretary, Louis C. Miall.

LIST OF MEMBERS AND SUBSCRIBERS,

1872-3.

** Members deceased, whose shares have not been transferred.*

PROPRIETARY MEMBERS,

EXEMPT FROM ANNUAL SUBSCRIPTIONS.

Aldam, W.	Frickley Hall, Doncaster.
Armitage, William James	Farnley, near Leeds.
Arthington, Robert	73, Hunslet Road.
Atkinson, John William	Woodhouse Square.
Baines, Edward, M.P.	St. Ann's Hill, Burley, near Leeds.
Barran, John	Chapel-Allerton Hall, near Leeds.
Battye, James C.	Yeadon, near Leeds.
*Beckett, William.	
Bilbrough, Alfred	15, Beech Grove Terrace.
Binks, Benjamin	Headingley, near Leeds.
Birchall, J. D.	Bowden Hall, Gloucester.
Broadhead, Henry	Chapel-Allerton, near Leeds.
Brown, James (2 shares)	Rossington, Doncaster.
Brown, Samuel James (2 shares)	Loftus Hill, near Knaresborough.
Burton, Miss	Roundhay, near Leeds.
Calverley, Edmund (2 shares)	Oulton Hall, near Leeds.
Charlesworth, C. H.	Settle.
Chorley, Henry	Park Square.
Coghlan, William	Granville House, Hyde Terrace.
Cudworth, John W.	52, Mount Preston.
Denison, William Beckett	Meanwood Park, near Leeds.
Dibb, Thomas Townend	Little Woodhouse.
Eddison, John Edwin, M.D.	29, Park Square.
Ellershaw, John	Oakfield, Kirkstall, near Leeds.
Ellershaw, Walter	3, Cromer Terrace.
Empson, Christopher	Bramhope Hall, near Leeds.
Ford, Robert Lawson	Adel Grange, near Leeds.
George, Thomas Willington	Chapeltown, near Leeds.
Goodman, Benjamin	Gledhow House, near Leeds.

Gott, Rev. John, M.A. (2 shares) .	Bramley Parsonage, near Leeds.
Gott, William Ewart (3 shares) .	Armley House, near Leeds.
Greenhow, Thomas Michael, M.D.	Newton Hall, near Leeds.
Harding, T. R.	St. Ann's Tower, Headingley.
Heaps, John William . . .	Terrace House, Chapeltown Road.
Heaps, Charles Denison . .	Woodhouse Lodge, Woodhouse Lane.
Heaton, John Deakin, M.D., F.R.C.P.	Claremont, Leeds.
Hey, William, F.R.C.S. . .	Gledhow Wood, near Leeds.
Hirst, Joseph	Wharfedale Lawn, Wetherby.
Holdforth, Walter	Knaresborough.
Holt, Joseph	Wedderburn House, Harrogate.
Horsfall, Abraham . . .	Whitkirk Manor House, near Leeds.
Ingham, Constantine . . .	Clarendon Place.
Ingham, William	Belmont, Chorley Lane.
Jowitt, John	Harehills Grove, Potternewton, near Leeds.
Joy, William Glover . . .	Headingley, near Leeds.
Kinnear, Thomas John, M.A. .	Horsforth Hall, near Leeds.
Latimer, John	St. Mark's Villas, Woodhouse Lane.
Luccock, John Darnton . . .	54, North Street.
Lupton, Francis	Beechwood, Roundhay, near Leeds.
Lupton, Sydney	Harehills, Potternewton, near Leeds.
Makins, Charles	17, Craven's Hill, Regent's Park, London, N.W.
Marshall, Edmond Henry . .	Weetwood Hall, near Leeds.
Marshall, Henry Cowper . .	Do.
Marshall, Arthur, F.G.S. . .	Headingley House, near Leeds.
Marshall, J. G., F.G.S. (2 shares) .	Do.
Marshall, Victor Alexander Ernest, B.A.	Do.
Nunneley, J. A., M.B. . . .	22, Park Place.
*Rhodes, Rev. J. Armitage, M.A.	
Rhodes, John	Potternewton House, near Leeds.
Shepherd John	Allenby House, Tadcaster.
*Smith, John Metcalfe.	
Smith, Henry Stooks . . .	Headingley, near Leeds.
Tatham, George	Springfield Mount.
Teale, Thomas Greenwood . .	Bentley House, Meanwood, near Leeds.
Teale, Mrs.	St. James' Lodge.

Tottie, John William . . .	Coniston Hall, Bell Busk, nr. Skipton.
Waite, James Butler . . .	Belvidere House, New Leeds.
Walker, Edward	15, Springfield Mount.
Ward, William Sykes, F.C.S. . .	Denison Hall, Hanover Square.
Whiteley, William	Butt's Cottage, Armley.
*Wilson, Richard Basset.	

NEW PROPRIETARY MEMBERS,

WITH AN ANNUAL SUBSCRIPTION OF ONE GUINEA.

Atkinson, Daniel Hopkin . .	16, Brunswick Place.
Atkinson, Edward, F.L.S., F.Z.S. .	2, Albion Place.
Baines, Frederick	Weetwood.
Balme, E. B. Wheatley . . .	Cote Wall, Mirfield.
*Beckett, William (8 shares).	
Bilbrough, Joseph Brooks . .	15, Beech Grove Terrace.
Birchall, Edward	7, Park Square.
Boothroyd, W.	Grove Hill, Headingley, near Leeds.
Brown, William (2 shares) . .	Bardon Grange, Weetwood, near Leeds.
Buckton, George	Roundhay, near Leeds.
Buckton, Joshua	Moor-Allerton, near Leeds.
Burkill, Isaac Henry . . .	Allerton Hall, Chapeltown, near Leeds.
Butler, J. O.	Abbey House, Kirkstall, near Leeds.
Chadwick, Charles, M.D., D.C.L., F.R.C.P.	35, Park Square.
Chadwick, William . . .	Arksey, Doncaster.
Cliff, Joseph	Wortley, near Leeds.
Connor, Mrs.	Gledhow Hall, near Leeds.
Conyers, W. H.	Oak Villa, Grosvenor Road, Headingley, near Leeds.
*Cooper, John (2 shares).	
Craven, Joseph	Clifton House, Beeston Hill, near Leeds.
Crofts, John	Adel, near Leeds.
Curwood, Capel Augustus . .	De Grey Terrace.
Donisthorpe, G. E. . . .	Harrogate.
Fairbairn, Sir Andrew, M.A. . .	Goldsborough Hall, Knaresborough.
Farrer, James	Ingleborough House, Clapham, near Lancaster.

Ferguson, William . . .	25, Albion Street.
Filliter, Edward, M. Inst., C.E., F.G.S.	West Mount House, Clarendon Rd.
*Gott, John (10 shares).	
Hall, Thomas	Heath Cottage, Moor-Allerton, near Leeds.
Hargrave, James	Willaston House, Harrogate.
*Hargreaves, S. B.	
Harvey, William	Bellevue Terrace.
Henderson, Rev. W. G., D.C.L. .	Grammar School.
*Hewitson, W. W.	
Hey, Samuel, F.R.C.S. . . .	1, Albion Place.
*Holdforth, J. D.	
Holroyd, James	Gledhow, near Leeds.
Howarth, Rev. William Lee . .	Elmwood House.
Hudson, Henry	Oakwood, Roundhay, near Leeds.
Hudson, Robert John . . .	Burley-in-Wharfedale.
Ingham, Charles Alfred . . .	Belmont, Chorley Lane.
Ingham, Henry Constantine . .	Lyddon Terrace.
Jowitt, Robert Benson . . .	Elmhurst, Potternewton, near Leeds.
Joy, Walker	3½, Queen Square.
Kennedy, Thomas Stewart . .	Meanwood, near Leeds.
Kitson, James	Elmete Hall, Roundhay, nr. Leeds.
Kitson, J. Hawthorne . . .	Hyde Terrace.
Kitson, James, Jun. . . .	Headingley, near Leeds.
Kitson, Frederick William . .	Burley, near Leeds.
Latchmore, Edward . . .	4, Ridge Mount, Cliff Road.
Leather, J. T.	Leventhorpe Hall, near Leeds.
Ludolf Henry	Headingley Lane, near Leeds.
Lupton, Arthur	Headingley, near Leeds.
Lupton, Joseph	Chapel-Allerton, near Leeds.
Lupton, John	Moorlands, Headingley, nr. Leeds.
Lupton, Darnton, Jun. . . .	Harehills, Potternewton.
Lupton, Francis Martineau . .	Beechwood, Roundhay.
March, Joseph Ogden . . .	Beech Grove House, Woodhouse Lane.
Margerison, J. L.	4, Porchester Gate, Bayswater Road, London.
Marshall, Thomas, M.A. . .	Highfield, Chapel-Allerton, nr. Leeds.
Marshall, John, M.A. . . .	Bentley Lodge, Meanwood, nr. Leeds.
Marshall, Stephen Albert . .	Weetwood, near Leeds.
Maude, Edmund	Middleton Lodge, Beeston, nr. Leeds.

Meggeson, George	6, Cromer Terrace.
Naylor, J. E.	
Nickols, Richard	Bramley, near Leeds.
*Nicholson, Mrs., Roundhay (2 shares).	
Nunneley, A. G.	22, Park Place.
Oxley, Henry	Weetwood Villa, Weetwood Road. Far Headingley, near Leeds.
Passavant, P. W.	De la Haye House, Chapeltown Rd.
Price, William Nicholson, F.R.C.S.	7, East Parade.
Prichard, W.	Bishopgate Street.
Reynolds, Richard, F.C.S.	Cliff Lodge, Hyde Park, Leeds.
Sagar-Musgrave, J.	Red Hall, Shadwell, near Leeds.
Stansfeld, T. W. (2 shares)	Weetwood Grove.
Stewart, G. M.	43, Hillary Street.
Taylor, George	Buckingham House, Headingley, near Leeds.
*Samuel Taylor.	
Teale, T. Pridgin, M.A., F.R.C.S.	North Grange, Headingley, nr. Leeds.
Teasdale, Washington	Rosehurst, Headingley, near Leeds.
Tennant, Robert	Scarcroft Lodge, Shadwell, nr. Leeds.
Tennant, Thomas	21, Blenheim Terrace.
Tetley, F. W.	Foxhill, Weetwood, near Leeds.
Turner, Richard Bickerton	Bank of England, South Parade.
Wailes, William	Harrogate.
Watson, William	Elmwood, Harrogate.
Whitaker, John (2 shares)	Messrs. Brown & Co., Commercial St.
Whiting, John	Regent Villas, Headingley, nr. Leeds.
Wicksteed, Joseph Hartley	3, Eldon Terrace, Woodhouse Lane.
Wilson, John	Seacroft, near Leeds.
Wilson, Thomas, M.A.	3, Hillary Place.
Wood, Richard	Newton Villa, Potternewton, near Leeds.
Woodford, Rev. Canon, D.D.	The Vicarage, Park Place.

ORDINARY MEMBERS,

WITH AN ANNUAL SUBSCRIPTION OF TWO GUINEAS.

Armistead, Rev. Charles John, M.A., F.S.A.	Mildon Hall, Suffolk.
Armistead, Joseph John	Chapeltown.
Atkinson, J. H.	14, East Parade.

*Bloome, Matthew	
Bowers, Rev. T. S., M.A. . .	Kirkstall, near Leeds.
Buckton, Joseph	Moorland Terrace.
Bulmer, John	4, Winfield Mount, Potternewton Lane.
Cadman, William	Roundhay, near Leeds.
Garlick, William	6, Hyde Terrace.
Hewitt, E. W.	Ashfield, Headingley Hill, nr. Leeds.
Ikin, Joshua Ingham, F.R.C.S. .	19, Park Place.
Martin, Samuel Dickinson . .	Meanwood Lane, Chapel-Allerton, near Leeds.
Ramskill, Josiah, M.R.C.S. . .	13, Meadow Lane.
Stratten, Rev. J. R. . . .	Park Square.
Swaine, W. E.	Highfield House, Woodhouse Lane.
Sykes, Henry Marshall . . .	Roundhay, near Leeds.

NEW ORDINARY MEMBERS,

WITH AN ANNUAL SUBSCRIPTION OF ONE GUINEA.

Allbutt, T. Clifford, M.A., M.D., F.S.A., F.L.S.	Virginia Road.
Baines, Edward Manwaring . .	6, Ashwood Terrace, Headingley Hill, near Leeds.
Barr, Frederick Horatio . .	Mount View, Headingley Lane, near Leeds.
Barr, Mrs. Robert	Mount Pleasant.
Barwick, J. M.	Glen View, Shipley.
Benson, John	19, Albion Street.
Best, William	18, Lyddon Terrace.
Bolland, W. T.	Hunslet Lane.
Booth, Joseph	Grosvenor Road, Headingley Lane, near Leeds.
Botterill, John	Flower Bank, Burley, near Leeds.
Bousfield, Charles Edward . .	3, Beech Grove Terrace.
Briggs, Riley	Springfield Mount.
Carter, Robert Meek, M.P. . .	Woodhouse Lane.
Clay, George.	8, Blenheim Square.
Corson, George	Far Headingley, near Leeds.
Dawson, Edwin	17, Blenheim Terrace.
Denny, T. G.	46, Burley Street.
Dixon, J. W.	13, Vernon Road.

Eddison, Frederick	4, Woodsley Terrace, St. John's Hill.
Eddison, Robert William	Headingley, near Leeds.
Firth, William	Burley Wood House, near Leeds.
Ford, J. Rawlinson	Adel Grange, near Leeds.
Ford, T. B. P.	Ilkley, near Leeds.
Gascoigne, F. C. Trench	Parlington Park, near Leeds.
*Greenwood, Thomas	
Hargrave, John	St. Ann's Lodge, Burley, near Leeds.
Hepper, John	Clareville, Headingley, near Leeds.
Holt, Henry Percy	Cavendish Road.
Holt, Joseph	Wedderburn House, Harrogate.
Horsman, Thomas, B.A.	3, High Royd, Belle Vue Road.
Illingworth, William	Headingley Cliff, near Leeds.
Ingham, Tom	Belmont, Chorley Lane.
Irwin, Edward	Preston House, Tonbridge Street.
Irwell, Julius.	Highfield House, Headingley, near Leeds.
Jackson, Rev. Edward, M.A.	9, Brunswick Place, North Street.
*Jackson, William S.	
Kempe, Arthur	29, Brunswick Terrace.
Kemplay, Miss	St. John's Place.
Lambert, Joseph	Rose Court, Headingley Lane, near Leeds.
Lawson, Thomas	Potternewton, near Leeds.
Lawson, John	Beech Grove Hall.
Leather, J. W.	Newton Green, Chapeltown, near Leeds.
Ledgard, William	Eller Close, Roundhay.
Lupton, Joseph	Armley, near Leeds.
Manning, John	Weetwood, near Leeds.
McCheane, Rev. J. H., M.A.	Trinity Parsonage, Hyde Terrace.
March, George	Oaklands, Scarcroft, near Leeds.
Middleton, John William	Mount Terrace, Potternewton, near Leeds.
Morley, Herbert Ogle	20, Victoria Terrace.
Myers, William Beswick	Gristhorpe, near Filey.
Myers, W. C.	Grove House, Roundhay, nr. Leeds.
Nelson, Henry	St. John's Cottage, St. John's Road.
Nunneley, Thomas	10, Park Place.
Nussey, George Henry	St. Ann's Lane, Burley, near Leeds.
Nussey, Obadiah	Morley House, Headingley, near Leeds.

Nussey, Thomas	Virginia House, Headingley Hill, near Leeds.
Nussey, Samuel Leathley . .	Potternewton Hall, near Leeds.
Nussey, Peter	Spring Ville, Shaw Lane, Headingley, near Leeds.
*Payne, R. E.	
Ramsbotham, S. H., M.D. . .	16, Park Place.
Raynar, John	37, Lyddon Terrace.
Read, Miss	Chapel-Allerton, near Leeds.
Riley, Thomas	7, Blenheim Square.
Robinson, Major	Scarborough.
Robinson, Richard . . .	Ousthorpe Villa, Clarendon Road.
Robinson, R. H.	Kirkstall Hall, near Leeds.
Sharpe, Miss	21, Victoria Place, Camp Road.
*Simpson, R. W.	
Smith, John Edward . . .	Park Villas, Potternewton, nr. Leeds.
Smith, William Farrar . . .	Hope Villa, Woodhouse Lane.
Stables, James	Horsforth, near Leeds.
*Talbot, George.	
Temple, Rev. Henry, M.A. . .	St. John's Vicarage, Woodhouse Lane.
*Tennant, Joseph Mason.	
Titley, Anthony	Manor House, Victoria Grove, Headingley, near Leeds.
Titley, T. A.	Gledhow, near Leeds.
Tottie, J. W.	Coniston Hall, Bell Busk, nr. Skipton.
Townsley, Richard . . .	6, Springfield Mount.
Wade, John	Moorland Road.
Walker, Thomas	Headingley Hill, near Leeds.
Whiteley, Thomas	Blenheim Square.
Young, John	Moor Hill Farm, Headingley, near Leeds.

ANNUAL SUBSCRIBERS OF ONE GUINEA.

Ambler, T.	9, Park Place.
Appleton, Henry	Adel Lodge, near Leeds.
Asquith, John Robert . . .	Bond Place.
Asquith, J. W.	St. John's Terrace, Woodhouse.
Atkinson, Law	Clarendon Road.
Atkinson, C. F.	Do.
Baily, Walter	24, Hyde Terrace.
Baines, J. W.	Oatlands, Burley.

Barran, Charles	Chapel-Allerton Hall, near Leeds.
Barran, John, Jun.	5, Cromer Terrace.
Bartholomew, W. H., C.E.	Albion Villas, New Leeds.
Bedford, James	Woodhouse Cliff.
Beverley, Mrs.	Grosvenor Terrace, Headingley, near Leeds.
Beverley, Robert	Woodsley Terrace.
Beverley, W. A.	17, St. John's Terrace.
Bickerdike, Rev. John, M.A.	St. Mary's Vicarage, Beckett Street, Burmantofts.
Bilbrough, Alfred	15, Beech Grove Terrace.
Birchall, Oswald	Kirkstall Grove, near Leeds.
Bowlby, Richard	Westville, Potternewton, nr. Leeds.
Brailsford, Rev. E. J.	Churwell, near Leeds.
Braithwaite, James, M.D.	Clarendon Road.
Braithwaite, Richard Hale	Do.
Browne, J. C.	Newton Lodge, Roundhay, near Leeds.
Bruce, Willliam	Moorland Terrace.
Buckley, J. C.	10, Blenheim Terrace.
Buckton, Richard	Cumberland Lodge, Headingley Hill, near Leeds.
Bulmer, Charles	Blenheim Lodge.
Bulmer, Clifford Charles	Do.
Burton, F. H.	Newtown Works.
Butler, Edmund	Kepstorn.
Calvert, John P.	6, Springfield Place.
Campbell, Archibald	20, Hyde Terrace.
Carpenter, Rev. J. Estlin, M.A.	7, Lifton Place.
Carr, Theodore	35, Lofthouse Place.
Chadwick, W.	22, Moorland Road.
Chatwin, E. W.	1, Willow Grove Road.
Cheetham, W.	Woodbottom Cottage, Horsforth, near Leeds.
Child, J. K.	Dewsbury Moor, Dewsbury.
Clare, W., M.D.	Park Square.
Clark, Miss	S. L. Nussey, Esq., Potternewton Hall, near Leeds.
Clay, J. W.	Warwick Place.
Coates, James Irwin	Richmond Terrace, Headingley, near Leeds.

Conyers, Joseph	Castle Grove, Headingley, near Leeds.
Cooke, William	Moorfield House, Moor-Allerton, near Leeds.
Cooper, G. I.	Woodhouse Chemical Works.
Craig, Robert	98, Briggate.
Crawford, James	Chapel-Allerton, near Leeds.
Crawford, Emmerson	Messrs. Beckett & Co., Park Row.
Crawford, J. W.	Newton Lane.
Crosley, William	33, Mount Preston.
Crossley, Louis John	Halifax.
Cuthbert, John	163, Woodhouse Lane.
Daniel, R. F.	31, Cromer Terrace.
Davey, Henry	Gwinear House, Tanfield Street.
Davis, Arthur Sladen, M.A.	Grammar School.
Davis, Edward	Alpha Cottage, Far Headingley, near Leeds.
Dawson, William	Larchfield Mills, Hunslet Lane.
Denby, Alfred	West Hill, New Leeds.
Dixon, Robert Henry	25, Virginia Road.
Dixon, Henry	6, De Grey Road.
Dolan, John Cass	North Hill Road, Headingley, near Leeds.
Douglas, Dr.	7, South Parade.
Douglas, John	Beechgrove, Oulton, near Leeds.
Dufton, Arthur Wellesley	74, Springfield Place.
Eddison, John, C.E.	1, Osborne Terrace, Virginia Road.
Emsley, G. A.	Clarendon Mount.
Falcon, Thomas	Pudsey, near Leeds.
Fenwick, Thomas	Allerton Hill, Chapel-Allerton, near Leeds.
Ferns, Francis	Cliff Road.
Foster, A. S.	Garforth, near Leeds.
Foster, Samuel	2, Aked's Terrace, Woodhouse Moor.
Fox, James, C.E.	Woodlands, Horsforth, near Leeds.
Fraser, John	Grove House, Headingley, near Leeds.
Freeman, Samuel	Newton Grove, New Leeds.
Galleway, Thomas	Blenheim Terrace.
Gamble, J. H.	Kendall Street.
Gaunt, Miss	4, Victoria Place, Camp Road.

Gaunt, J. W.	Farsley, near Leeds.
Glover, D. R.	16, De Grey Road.
Goodall, Charles	Francis Street, New Leeds.
Granger, C.	Newton Grove, Chapeltown Road.
Greene, John	Whinmoor, near Seacroft.
Greenwood, F.	School of Medicine, Park Street.
Greenwood, W. F.	Park Villas, Hyde Park Road.
Haigh, Rev. C. D., M.A.	3, Woodsley Terrace.
Hall, Frederick	North Street.
Hall, William	1, Hillary Place.
Hallewell, Miss	2, Woodsley Terrace.
Hallilay, John	Burley Road.
Hamilton, R. W.	Cardigan Villas, Shaw Lane, Headingley, near Leeds.
Hammond, Thomas	Hanover Square.
Handcock, George	5, Leopold Mount, Chapeltown Road, near Leeds.
Harding, J. W.	Hillary Lodge, Cavendish Road.
Hargrave, Charles	Oxley Hill, Moortown, near Leeds.
Harrison, Rev. F. L.	Vicarage, Burley, near Leeds.
Harvey, Thomas	Ashwood, Headingley Hill.
Hassé, A. B.	31, Commercial Street.
Headland, Thos, Jun.	49, Briggate.
Heald, Alfred William	8, Springfield Mount.
Hebblethwaite, A. R.	12, Blenheim Terrace.
Hebblethwaite, J. W., Jun.	Moor-Allerton Hall, near Leeds.
Hewetson, Henry	St. John's Terrace.
Hezmalhalch, Joseph	Thorner, near Leeds.
Hiley, Rev. R. W.	Thorparch Grange, Tadcaster.
Hill, John William, M.A.	Lynton Villa, Mount Preston.
Hill, M. S.	30, Mount Preston.
Hindle, J. E.	Bramhope, near Leeds.
Hirst, J. A.	Hyde Lodge, St. John's Hill.
Hobson, Frederick	49, Briggate.
Hodgson, J. P.	10, De Grey Terrace.
Holmes, John	Methley, near Leeds.
Holmes, Joseph	92, Meadow Lane.
Holt, Edward	The Manor House, Farnley, near Leeds.
Hudson, Walter	Grey Stone House, Adwalton, near near Leeds.

Huggon, William, F.C.S.	50, Springfield Place.
Hurd, Samuel	Leopold Mount, Chapeltown Road.
Irwin, G.	30, Albion Street.
Jackson, G. W.	5, Park Place.
Jackson, William Thomas	Headingley Hill, near Leeds.
Jeffery, Thomas Richardson	54, Skinner Lane.
Jepson, E. G.	8, Woodsley Terrace.
Jessop, T. R., F.R.C.S.	32, Park Square.
Jowitt, Miss	5, Newton Grove, New Leeds.
Joy, Lomas	Ridge House, Kingston Grove, Woodhouse Lane.
Kirkby, Thomas	8, Beech Grove Terrace.
Kirkby, Frederick	3, Springfield Mount.
Kirk, James	Killingbeck Hall, near Leeds.
Knight, J. C.	Queen's Place, Chapel-Allerton, near Leeds.
Land, R. T.	Leopold Street, New Leeds.
Lawson, Arthur T.	Beech Grove.
Leadman, Alexander	St. Ives, Headingley, near Leeds.
Lee, W.	8, Samuel Street, Camp Road.
Legard, Albert G.	5, Montpelier Terrace.
Loe, James S.	147, Woodhouse Lane.
Longbotham, George	21, Park Square.
Lupton, Arthur G.	Beechwood, Roundhay, near Leeds.
Lupton, Edward Arthur	4, Blenheim Terrace.
Lupton, Henry	The Elms, Chapel-Allerton, near Leeds.
Lupton, William W.	Newton Hill, near Leeds.
Marsden, H. R.	Avenue House, Woodhouse Lane.
Marshall, W. E.	1, Beech Grove Terrace
Matheson, W. W.	8, Hyde Terrace.
Matterson, Miss	8, Cavendish Road.
Maude, Miss	Knowsthorpe House, near Leeds.
Middleton, William	Gledhow Grange, near Leeds.
Moore, Major	3, Woodhouse Square.
Moxon, John	New Leeds.
Musgrave, Albert	Belle Vue Road.
Naylor, G. F.	Bond Street, Wakefield.
Naylor, J. W.	Allerton Hill, Chapeltown, nr. Leeds.
Newstead, J. S.	Beech Grove Terrace.
Paley, Miss	West View Terrace, Chapeltown, near Leeds.

Pawson, A. H.	Lawn's House, Farnley, near Leeds.
Pawson, John Edward	Do.
Pearson, John Thomas	Weetwood Road, Far Headingley, near Leeds.
Pearson, G. B.	Headingley, near Leeds.
Pope, Edward	Farfield, Moor-Allerton, near Leeds.
Pope, R.	Clarendon House.
Powell, William	13, Park Place.
Price, Henry W.	
Ralph, John	8, Brunswick Place, North Street.
Rayner, George	Hyde Gardens, Clarendon Road.
Rayner, John	17, Vernon Road.
Redmayne, John	Chapeltown, near Leeds.
Reffitt, J. W.	Hanover Street.
Reynolds, Freshfield	13, Briggate.
Richards, F. S., U.S.A. Consul	2, Queen Street.
Rickards, G. H. L.	7, Moorland Road.
Rider, James	4, High Royd, Belle Vue Road.
Robinson, Alfred	49, Lofthouse Place.
Robinson, Frederick	14, Mount Preston.
Robinson, Thomas	Castleton Lodge, Armley, nr. Leeds.
Robinson, Rev. Thomas	Farsley Parsonage, near Leeds.
Rooke, Charles S.	Newton Hill, Potternewton, nr. Leeds.
Rooke, R. L.	Do.
Rowley, Walter, C.E.	Headingley, near Leeds.
Rushworth, C. W.	Hillary Mount, Woodhouse Lane.
Ryder, Charles	Regent Villas, Headingley, nr. Leeds.
Salt, George	Saltaire, near Bradford.
Scattergood, Thomas	41, Park Square.
Seaton, James	Wintoun House, North Street.
Shackleton, Joseph	Wortley, near Leeds.
Smith, Edward James	Grosvenor Terrace, Headingley, near Leeds.
Smith, Stephen Ernest	Gordon Villas, Woodhouse Lane.
Smith, John Wales	2, Gordon Villas, Woodhouse Lane.
Smith, Mrs. Henry	Highfield, Headingley, near Leeds.
Snowdon, Henry	12, Claypit Lane.
Snowdon, Rev. R. K.	Chapel-Allerton, near Leeds.
Stables, Ashley	Horsforth, near Leeds.
Style, Rev. G., M.A.	Giggleswick Grammar School.
Swaine, John	North Hill Road, Headingley Hill, near Leeds.

Sturgeon, Thomas	Burley Mount, near Leeds.
Symes, E. West, M.B.	The Dispensary.
Sykes, Alfred W.	Cookridge, near Leeds.
Taylor, T. C.	Dyehouse, Birstall, near Leeds.
Thackray, Joseph	Headingley, near Leeds.
Thompson, Vincent T.	High Royd, Belle Vue Road.
Thoms, G. E.	Aire and Calder Navigation Company, Dock Street.
Thorne, H. A.	14, Cobourg Street.
Tiffany, George John	17, Grove Terrace.
Todd, William	Blundell Place.
Tootal, Miss	St. Mary's Mount.
Trumble, H. G.	Basinghall Street.
Turner, Joseph	Spencer Place, New Leeds.
Walker, William	Hanover Square.
Walker, Leasowe	Brunswick Place.
Walker, James	5, High Royd, Belle Vue Road.
Walker, James	Tannery House, North Lane, Headingley, near Leeds.
Walker, Henry	Oak House, Headingley.
Walley, Joseph	14, Eldon Terrace.
Ward, William	Manor House, Churwell, nr. Leeds.
Ward, William, Jun.	Denison Hall, Hanover Square.
Ward, George N.	2, De Grey Road.
Ward, Richard Gledhill	Do.
Wardle, C. W.	Whitkirk, near Leeds.
Watson, Charles	Woodhouse Lane.
Webb, J. P.	Cardigan House, Headingley, near Leeds.
Wesley, John S.	Wetherby, near Leeds.
Wheelhouse, W. St. J., M.P.	14, Queen Street.
Wheelhouse, C. G., F.R.C.S.	Hillary Place.
Williams, Rev. C. Harley Drummond	St. Luke's Vicarage, North Street.
Willett, Ernest H.	Arnold House, Brighton.
Willson, J. J.	3, Newton Grove, New Leeds.
Wilson, Edmund	4, Osborne Terrace, Beech Grove.
Wood, Robert Henry	Springville, Horsforth, near Leeds.
Wood, Rev. Frederick J., M.A.	Priory, Camp Road.
Wood, Frederick	18, Hyde Terrace.
Wright, Howard	Phœnix Cottage, Chapel-Allerton, near Leeds.

Wright, Charles James, M.R.C.S.	4, Park Square.
Wright, Murrell, Jun.	Woodland View, Chapeltown, near Leeds.
Yewdall, John Cliff	Oaklands, Calverley, near Leeds.
Yewdall, David	Calverley Grange, near Leeds.
Yewdall, Edwin	40, Wade Lane.

ANNUAL SUBSCRIBERS OF SEVEN SHILLINGS AND SIXPENCE.

Asquith, Mrs.	St. John's Terrace, Woodhouse.
Atkinson, Miss	Clarendon Road.
Atkinson, Miss Eleanor	Do.
Atkinson, Miss Emily	Do.
Atkinson, Miss M. E.	Woodhouse Square.
Baily, Mrs.	24, Hyde Terrace.
Barran, Mrs.	Chapel-Allerton Hall, near Leeds.
Barran, Mrs., Jun.	5, Cromer Terrace.
Bedford, Mrs.	Woodhouse Cliff.
Best, Miss Mary	18, Lyddon Terrace.
Beverley, Mrs. R.	Woodsley Terrace.
Beverley, W. H.	Do.
Beverley, Miss	Do.
Beverley, Arthur	3, Grosvenor Terrace, Headingley, near Leeds.
Beverley, Miss	Do.
Beverley, Mrs. W. A.	St. John's Terrace.
Bowlby, Mrs.,	Westville, Potternewton, near Leeds.
Brailsford, Mrs.,	Churwell, near Leeds.
Bruce, Mrs.	Moorland Terrace.
Buckley, Miss	Blenheim Terrace.
Buckley, Miss Amelia	Do.
Buckton, Mrs. R.	Cumberland Lodge, Headingley, near Leeds.
Buckton, Walter	Moorland Terrace.
Buckton, Miss	Do.
Bulmer, Mrs. C.	Blenheim Lodge.
Butler, Mrs. A.	Kepstorn, near Leeds.
Butler, Miss	Do.
Campbell, Mrs.	20, Hyde Terrace.
Chadwick, Mrs. W.	22, Moorland Road.

Chadwick, Miss	35, Park Square.
Chadwick, Miss Amy	Do.
Charlesworth, Miss F. M.	17, Hanover Square.
Cheetham, Miss E.	Woodbottom Cottage, Horsforth, near Leeds.
Clare, Mrs.	Park Square.
Clare, Miss	Do.
Cooke, Mrs.	Moorfield House, Moor-Allerton, near Leeds.
Crawford, Mrs. E. W.	Messrs. Beckett & Co., Park Row.
Crawford, Miss	Do. do.
Crosley, Miss	33, Mount Preston.
Daniel, Mrs. R. F.	10, Cromer Terrace.
Davey, Mrs.	Gwinear House, Tanfield Street.
Davis, Mrs. E.	Alpha Cottage, Far Headingley, near Leeds.
Davis, Miss	Do.
Denby, Mrs.	Chapeltown, near Leeds.
Denby, Miss	Do.
Dixon, Mrs. R. H.	25, Virginia Road.
Dixon, George Edward	6, De Grey Road.
Dixon, Miss	Do.
Dixon, Miss M. E.	Do.
Dobson, Miss	Grove House, Roundhay, nr Leeds.
Douglas, Mrs.	7, South Parade.
Douglas, Mrs.	Beech Grove, Oulton, near Leeds.
Emsley, Mrs. G. A.	Clarendon Mount.
Falcon, Mrs.	Pudsey, near Leeds.
Fenwick, Mrs.	Allerton Hill, Chapeltown, nr. Leeds.
Ferns, Mrs.	Cliff Road.
Foster, Mrs.	2, Aked's Terrace, Woodhouse Moor.
Fraser, Mrs.	Grove House, Headingley, nr. Leeds.
Fraser, H. S.	Do. do.
Fraser, Miss	Do. do.
Frost, Miss	7, Lyddon Terrace.
Garlick, Miss	6, Hyde Terrace.
Glover, Mrs.	16, De Grey Road.
Glover, Miss	Do.
Glover, Miss M.	Do.
Granger, Mrs.	Newton Grove, Chapeltown Road.
Granger, Farrington	Do. do.

Granger, Miss	Newton Grove, Chapeltown Road.
Greene, Mrs.	Whinmoor, near Seacroft.
Greene, Miss	Do. do.
Greenwood, Miss	Park Villas, Hyde Park Road.
Greenwood, Miss H.	Do. do.
Haigh, Arthur	3, Woodsley Terrace.
Haigh, Miss	Do.
Hall, Mrs. F.	North Street.
Hall, Mrs. W.	1, Hillary Place.
Hallilay, Mrs.	Burley Road.
Hamilton, Mrs.	Cardigan Villas, Shaw Lane, Headingley, near Leeds.
Hammond, Miss	Hanover Square.
Handcock, Mrs. G.	5, Leopold Mount, Chapeltown Road.
Harding, Mrs.	Hillary Lodge, Cavendish Road.
Hardy, Miss F.	Woodbottom Cottage, Horsforth, near Leeds.
Harrison, Mrs.	The Vicarage, Burley, near Leeds.
Headland, Miss	49, Briggate.
Heaton, Miss Helen	Claremont.
Heaton, Miss Marian	Do.
Hebblethwaite, Mrs.	Moor-Allerton Hall, near Leeds.
Hebblethwaite, A. M.	Do. do.
Hebblethwaite, Miss	Do. do.
Hewetson, Miss R.	St. John's Terrace.
Hill, Mrs. J. W.	Lynton Villa, Mount Preston.
Hirst, Mrs. J. A.	Hyde Lodge, St. John's Hill.
Hodgson, Mrs. J. P.	10, De Grey Terrace.
Holmes, Mrs. J.	Methley, near Leeds.
Holroyd, Miss	Carlton Mill, Exeter Street, Woodhouse Lane.
Holt, Mrs.	The Manor House, Farnley, near Leeds.
Hudson, Mrs.	Grey Stone House, Adwalton, near Leeds.
Irwin, Miss	Preston House, Tonbridge Street.
Irwin, Miss Hannah	Do. do.
Jackson, Mrs. W. T.	Headingley Hill, near Leeds.
Jeffery, Miss E.	54, Skinner Lane.
Jepson, Mrs.	8, Woodsley Terrace.

Jessop, Mrs.	32, Park Square.
Jowitt, Miss E. M.	5, Newton Grove, New Leeds.
Jowitt, Miss F.	Harehills Grove, Potternewton, near Leeds.
Joy, Mrs. Lomas	Ridge House, Kingston Grove, Woodhouse Lane.
Kirkby, Herbert	3, Springfield Mount.
Kirkby, Miss	Do.
Kirkby, Miss Ada	Do.
Kirkby, Miss Eleanor	Do.
Kirkby, Harry	8, Beech Grove Terrace.
Knight, Miss L.	Queen's Place, Chapel-Allerton, nr. Leeds.
Lambert, Miss	Rose Court, Headingley Lane, near Leeds.
Lawson, F. W.	Beech Grove.
Lawson, Miss	Do.
Lawson, Miss M.	Do.
Lawson, Miss Kate	Do.
Leadman, Miss	St. Ives, Headingley, near Leeds.
Leadman, Miss O.	Do. do.
Ledgard, Miss	Eller Close, Roundhay, near Leeds.
Lee, Mrs. W.	8, Samuel Street, Camp Road.
Lupton, Mountford	4, Blenheim Terrace.
Lupton, Oliver	Do.
Marsden, Mrs. H. R.	Avenue House, Woodhouse Lane.
Marsden, Miss Grace	Do.
Matterson, Miss E. A.	8, Cavendish Road.
Middleton, Mrs.	Gledhow Grange, near Leeds.
Middleton, Miss	Do. do.
Middleton, Miss M.	Do. do.
Myers, Miss	Miss Matterson's, 8, Cavendish Rd.
Myers, Miss	Grove House, Roundhay, nr. Leeds.
Myers, Miss Henrietta	Do. do.
Naylor, Mrs. J. W.	Allerton Hill, Chapeltown, Leeds.
Nelson, C. J.	St. John's Cottage, St. John's Road.
Nelson, Herbert	Do. do.
Nelson, Miss M. E.	Do. do.
Nelson, Miss L.	Do. do.
Newling, Miss	W. E. Swaine, Highfield House, Woodhouse Lane.

Newstead, Mrs.	6, Beech Grove Terrace.
Passavant, William	De la Haye House, Chapeltown Road.
Passavant, Miss	Do. do.
Passavant, Miss Camilla	Do. do.
Passavant, Miss Fanny	Do. do.
Pearson, Miss	Headingley, near Leeds.
Pearson, Miss Emily	Do.
Pope, Mrs. R.	Clarendon House.
Pope, Miss	Farfield, Moor-Allerton, near Leeds.
Price, Mrs. H. W.	Park Square.
Ralph, Miss	8, Brunswick Place, North Street.
Rayner, Mrs. G.	Hyde Gardens, Clarendon Road.
Rayner, Miss	17, Vernon Road.
Rayner, Miss A.	Do.
Rider, Mrs. J.	High Royd, Belle Vue Road.
Robinson, Mrs. Alfred	49, Lofthouse Place.
Robinson, Mrs.	Castleton Lodge, Armley, nr. Leeds.
Rooke, Miss	Newton Hill, Potternewton, near Leeds.
Rooke, Miss E. M.	Do. do.
Rowley, Miss	Headingley, near Leeds.
Rushworth, Miss	Hillary Mount, Woodhouse Lane.
Rushworth, Miss Ellen	Do. do.
Ryder, Mrs. C.	Regent Villas, Headingley, nr. Leeds.
Scattergood, Mrs.	41, Park Square.
Seaton, Mrs.	Wintoun House, North Street.
Sharpe, Miss Ann	21, Victoria Place, Camp Road.
Stables, Miss	Horsforth, near Leeds.
Stables, Miss Lucy	Do. do.
Stansfeld, Miss	Weetwood Grove, near Leeds.
Stocker, Miss	J. D. Heaton, Esq., M.D., Claremont, Leeds.
Sturgeon, Miss M. K.	Burley Mount, near Leeds.
Swaine, Mrs. John	North Hill Road, Headingley Hill, near Leeds.
Swaine, Miss Marian	Do. do.
Tatham, Miss G.	Springfield Mount.
Tatham, Miss E.	Do.
Taylor, Mrs. S.	Hyde Terrace.
Thackray, Miss	Headingley, near Leeds.

Thompson, Mrs. V.	High Royd, Belle Vue Road.
Tootal, Miss M.	St. Mary's Mount.
Townsley, Miss	Springfield Mount.
Turner, Mrs.	Spencer Place, New Leeds.
Wade, Mrs.	22, Moorland Road.
Walker, Henry H.	3, Newton Grove, New Leeds.
Walker, Miss S. E.	15, Springfield Mount.
Walker, Mrs. M.	Oak House, Headingley.
Walker, Tom	Do. do.
Walker, Mrs. W.	Hanover Square.
Walker, Miss Kate	Harehills Lane, Chapeltown, near Leeds.
Walley, Mrs.	14, Eldon Terrace.
Ward, Miss Mary	2, De Grey Road.
Ward, Mrs.	Manor House, Churwell, nr. Leeds.
Ward, Alfred	Denison Hall, Hanover Square.
Wardle, Mrs.	Whitkirk, near Leeds.
Webb, Mrs.	Cardigan House, Headingley, near Leeds.
Webb, Miss F. S.	Do. do.
Webb, Miss C. E.	Do. do.
Wheelhouse, Mrs. C. G.	Hillary Place.
Wheelhouse, Mrs.	14, Queen Street.
Whiteley, Mrs.	Blenheim Square.
Williams, Mrs. Harley	St. Luke's Vicarage, North Street.
Willson, Mrs. J. J.	3, Newton Grove, New Leeds.
Wilson, Mrs. James	7, Lyddon Terrace.
Wood, Mrs. F.	18, Hyde Terrace.
Wright, Mrs. M., Jun.	Woodland View, Chapeltown, near Leeds.
Wright, Miss	Phœnix Cottage, Chapel-Allerton, near Leeds.
Yewdall, Mrs. J. C.	Oaklands, Calverley, near Leeds.
Yewdall, Miss	Do. do.
Yewdall, Mrs. G.	5, St. Mark's Villas.

Members and Subscribers are requested to inform the Secretaries of any errors that may be found in the above list.

HONORARY MEMBERS.

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Sir Rutherford Alcock, C.B., China.

Spencer F. Baird, M.D., Smithsonian Institution, Washington, United States.

Rev. Alfred Barry, D.D., King's College, London.

W. Boyne, F.S.A., London.

Signor Frederico Lancia Duca di Brolo, Palermo.

Joseph Burland, South Cave.

P. O'Callaghan, D.C.L., Oxon, LL.D., Dub.; F.S.A., &c., Leamington.

Dr. Day, Mendoza, South America.

Lewis Llewelyn Dillwyn, M.P., F.L.S., F.G.S., Hendrefoilan, Swansea, Glamorganshire.

Sir William Fairbairn, Bart., F.R.S., LL.D., Manchester.

The Right Hon. Earl Fitzwilliam, K.G., Wentworth House, Rotherham: 19, Grosvenor Square, London, W.

Herr Franz Foetterle, Secretary of the Imperial Royal Geographical Society of Vienna, &c., &c.

George Lane Fox, Bramham Park.

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W. H. Gellibrand, Cleveland, Ouse, Tasmania.

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Robert E. Grant, M.D., F.R.S.S., L. & E., F.L.S., G.S., Z.S., W.S., &c., &c., Professor of Comparative Anatomy and Zoology in University College, London, Grafton Place, Euston Square, London.

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John Phillips, M.A., LL.D., F.R.S., &c., Reader in Geology in the University of Oxford, Museum House, Oxford.

Major-General Sir Henry Rawlinson, K.C.B., F.R.S., M.R.A.S., London.

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The Most Hon. the Marquis of Ripon, K.G., F.R.S., F.G.S., Studley Royal, Ripon; 1, Carlton Gardens, London, S.W.

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John Robert Tennant, Kildwick Hall.

The Venerable Archdeacon Trollope, M.A., F.S.A., Leasingham, Lincoln.

Edward Harry Woods, Rosario, in the Argentine Republic.

Thomas Wright, M.A., F.S.A., M.R.S.L., Member of the Institute of France; Corresponding Member of the Society of Antiquaries of Copenhagen; of the Society of Antiquaries of Scotland, &c.. &c.; Brompton.

McCorquodale & Co., Printers, Bank Street, Leeds.

THE

FIFTY-FOURTH REPORT

OF

THE COUNCIL

OF THE

LEEDS PHILOSOPHICAL & LITERARY SOCIETY

AT THE

CLOSE OF THE SESSION 1873-74

Read at the Annual Meeting, May 5th, 1874

LEEDS
PRINTED BY McCORQUODALE & CO., BANK STREET
MDCCCLXXIV.

IMPORTANT RULE

RESPECTING THE PROPERTY OF THE SOCIETY

PASSED OCTOBER 8TH, 1860

That in the event of a dissolution of this Society, its Property and Effects, whether real or personal, shall not be disposed of for the personal benefit of the Members, but shall be appropriated in such manner for the advancement of Science, Literature, or Art, in the town of Leeds, as shall be determined by a majority of the Members at an extraordinary Meeting to be convened for that purpose. But that no dissolution of the Society shall take place without the consent in writing, of a majority holding not less than two-thirds of the Proprietary Shares.

FORM OF A BEQUEST TO THE SOCIETY

Every person desirous of bequeathing to the Society any sum of Money, Specimens, Books, Instruments, or other Property, is requested to make use of the following Form :—

I give and bequeath to the Trustees for the time being of the Society established at Leeds, called "THE LEEDS PHILOSOPHICAL AND LITERARY SOCIETY," *for the use of the said Society, the sum of* , *to be paid out of such part of my personal Estate as I may legally charge therewith.* [Or here enumerate the Effects or Property intended to be bequeathed]. *And I direct that the Receipt of the Treasurer of the said Society for the time being, shall be an effectual discharge to my Executors for the said Legacy.*

REPORT OF THE COUNCIL

AT THE CLOSE OF THE

FIFTY-FOURTH SESSION

During the past year, the number of Subscribers to the Society has remained nearly stationary. Sixty-nine new names have been added, while fifty-seven have been withdrawn. The number of Members is practically constant; it has lately received a small addition in consequence of the forfeiture and re-issue of three lapsed shares.

The Council acknowledge with thanks a renewed donation of £10 from Thomas Emsley, Esq., of Burley-in-Wharfedale.

The following is a list of the Lectures delivered before the Society during the past Session :—

1. "Epochs in the progress of Physiological Science." J. I. Ilkin, F.R.C.S., Vice-President. *Read Oct. 21st*, 1873.
2. "Recent Researches in Spectrum Analysis." J. Norman Lockyer, F.R.S. *Read Oct. 30th*, 1873.
3. Second Lecture. J. Norman Lockyer, F.R.S. *Read Nov. 6th*, 1873.
4. "Robespierre." John Morley. *Read Nov. 25th*, 1873.
5. "The Study of Figure Painting." Edward J. Poynter, A.R.A., *Read Dec. 9th*, 1873.
6. The Conversazione. *Held Dec. 16th*, 1873.
7. "The Chemistry of the Alcohols." Walter Baily, M.A. *Read Jan. 6th*, 1874.
8. "W. M. Thackeray, and the Influence of his Writings." T. Wemyss Reid. *Read Jan. 20th*, 1874.
9. "The Mollusca of the European Seas." J. Gwyn Jeffreys, F.R.S. *Read Feb. 3rd*, 1874.

10. "River Denudation and Lake Basins." T. McK. Hughes, M.A., Woodwardian Professor of Geology, Cambridge. *Read Feb. 17th*, 1874.
11. "The Regeneration of Germany and the Baron vom Stein." J. R. Seeley, M.A., Professor of Modern History, Cambridge. *Read Feb. 24th*, 1874.
12. Second Lecture. Professor J. R. Seeley, M.A. *Read Mar. 3rd*, 1874.
13. "Khiva and the recent Russian Campaign." Arminius Vámbéry, Professor of Oriental Languages, Pesth. *Read Mar. 10th*, 1874.
14. "The Localisation of the Functions of the Brain." David Ferrier, M.D., Professor of Forensic Medicine, King's College, London. *Read Mar. 17th*, 1874.
15. "King Lear." J. W. Hales, M.A. *Read April 7th*, 1874.

For several years past the Council have arranged for the annual delivery of one or more courses of elementary lectures on scientific subjects. The announcement by the Local University Extension Committee of five courses of afternoon and evening lectures on Political Economy, Physical Geography, and Constitutional History, appeared to occupy the ground in an adequate manner during the winter-session which is just completed. In the early part of the session, public scientific lectures, provided in great part at the cost of the Gilchrist Trustees, supplied the demand for instruction in such subjects. No courses of lectures on scientific subjects, at once elementary and systematic, have therefore been provided by the Council of this Society during the last year, but they continue to recognize the value of such means of instruction, and desire to turn their resources more and more to educational account.

The Annual Conversazione was held on December 16th. A series of photographic views of Egypt was exhibited by the Oxy-hydrogen light, and explained by the Rev. J. Estlin Carpenter, M.A., who has recently travelled in Egypt. Both the address and the exhibition proved

completely successful, and gave much pleasure to a full audience. In pursuance of a plan, which was adopted at the previous Conversazione and advocated in last year's Report, Etching was adopted as a special subject for illustration on this occasion. The process, in all its stages, was demonstrated, and a series of highly interesting examples by Seymour Haden, R. S. Chattock, P. G. Hamerton, and others, was exhibited. Tilghman's Sand-Blast Machine was shewn at work by Mr. E. H. Carbutt, and attracted much attention. Among the numerous remaining objects of curiosity, were some remarkable Japanese Vases exhibited by Mr. John Rhodes, a collection of Oriental Pottery and Armour contributed by Mr. John Holmes, and Wilde's Magneto-Electric Machine exhibited by Mr. Titus Salt. The Staircase was lighted throughout the evening by the "Air-gas Light," under the direction of Messrs. Verity.

The attention of the Curator has been specially directed during the past year to the Antiquities and the lower classes of Vertebrata. The collection of Antiquities has been re-arranged on a different principle. Instead of a simple geographical division, such as previously obtained, the objects are now distributed into the three primary groups of Pottery, Stone Implements and Metal-work, the subdivisions being geographical, and in some degree chronological. The collections of Cave Relics, objects from Lake Dwellings, and Egyptian Mummies, remain distinct from the three chief groups. The whole has been cleaned, and printed labels are substituted for the old manuscript labels.

The Reptilia, Amphibia, and Fishes are now completely named, and may be reported as in sound condition. Where necessary, the specimens in spirit have been remounted. Here, also, printed labels are universally adopted. Preparations of a crocodile's skull, and a turtle's skull, in which every element is separated and named, have

been introduced. The collections of these lower Vertebrata in the Society's Museum are very unequal. Some important groups are represented only by old and defective examples. The Crocodilia, the Perennibranchiate Amphibia and the Ganoidei, on the other hand, prove to be of great interest, and fairly complete. The Curator reports that in the naming and arrangement of the Fishes, he has received valuable aid from his assistant, Mr. C. J. Clarke, who has attentively studied this group, and has determined or verified all the species in the possession of the Society, by means of Dr. Günther's Catalogue of Fishes.

Three table cases in the North Geological Room, containing remains of Pleistocene Mammalia and Birds, have been cleaned, re-arranged, and re-named, printed labels being everywhere attached to the specimens.

The printing of labels continues to occupy much of the time of the Curator's Assistant. The number of separate labels required during the past year has been 1,840, six copies of each being about the average number of impressions taken. The quality of the work has greatly improved since the new press and type presented by the late John Manning, Esq., came into use.

One Descriptive Guide, viz., that to the Fossil Collection, has been issued since the last Annual Meeting. The sale of the guides continues to give satisfactory evidence of their usefulness. In ten months (July 1st, 1873, to April 30th, 1874), 644 copies have been sold.

During the ten months ending April 30th, 1874, 32,155 persons have been admitted to the Museum by payment. The number is slightly less than in the corresponding months of 1872-3, but exceeds the admissions during the same part of any preceding year.

In December last, the Council heard that a valuable collection of fossils from the roof of the Low Main Coal of

the Northumberland coal-field might be purchased. The collection was particularly suitable to the wants of the Leeds Museum, since it included several fine examples of the Labyrinthodonts of the Coal Measures, besides an unrivalled specimen of the palate of *Ctenodus*. The liberality of several friends enabled the Council to purchase the collection, and our Museum is therefore enriched by the addition of several new, rare, and interesting types of Carboniferous Fishes and Amphibia.

The Council desire to place on record the circumstances attending the discovery of some remarkable Mammalian remains added to the Society's Geological Collection during the past year. In working one of the faces of a limestone quarry at Raygill, near Skipton, the men discovered bones and teeth imbedded in a mass of glacial clay, which occupied a vertical fissure. The fissure is eight or nine feet wide, and of unknown depth. It is nearly filled up by the glacial clay, which includes rounded pebbles of Millstone Grit and other local rocks. In one place, a cavity of considerable size has been left, which presents the appearance of a cave, and adjacent to this the principal remains have been found. The only remains hitherto deposited in the Museum are a canine tooth of *Hippopotamus major*, Desm., part of a tusk of *Elephas primigenius*, Blum., and fragments of plates from a molar of the latter animal. For these highly important objects, we are indebted to P. W. Spencer, Esq., the proprietor of the quarry, and to E. S. Spencer, Esq., who superintended the excavation, and most carefully washed out the fragile teeth from the tenacious clay in which they were contained. During the further progress of the works, fresh discoveries may be expected, and it is hoped that any further remains which may be found will be deposited in this, the nearest and most central local museum. Pains have been taken to

acquaint the workmen with the importance attached to such objects as those lately disinterred, and the supervision of the proprietors and of the intelligent foreman will doubtless prevent the careless or ignorant destruction which is too common in these cases. The geological interest of the remains in question is far greater than their zoological or anatomical value. It has been disputed whether the fauna typified by the Mammoth and Hippopotamus is wholly post-glacial, or whether it extends backwards into glacial and inter-glacial deposits. The discoveries at Raygill add weight to the arguments of those who maintain the latter view. In attaching to these fragments an importance which may seem exaggerated to those who are not interested in their geological significance, we are supported by the opinion of Mr. Prestwich, late President of the Geological Society, who recently visited the fissure, and pronounced it a most interesting and instructive case. We are indebted to John Brigg, Esq., of Keighley, for early information respecting the discovery, and for the communication of specimens.

A list of many interesting and valuable donations to the Museum will be found in a later section of this Report.

The Council have to regret the loss by death of two of their number during the year that has just closed. Mr. James Garth Marshall was one of the Original Proprietary Members of the Society, and a member of its Council for upwards of forty years. He filled the offices of President, Vice-President, and Curator in Geology at different times, having continued to take charge of the geological department from 1837 till his death. Mr. Marshall contributed several papers, which were read at the Society's meetings. We find one on Emigration, another on the Philosophy of Amusement, a third on Statistical Enquiries, and a fourth

on Colonization. In 1857, he gave an address on the Geology of the Lake District. A year later, when the British Association met in Leeds, the substance of this address was presented to the Geological Section of that scientific body. The memoir was distinguished by the careful manner in which a difficult and little-explored subject was approached. Notwithstanding the rapid progress of geological research, it still preserves its interest, and that part of the paper which discusses the sub-division of the Silurian Rocks will probably be found to possess permanent value. The Museum of the Society owes much to Mr. Marshall's liberality. Among his donations to the Zoological, Geological, and Industrial collections, the large *Plesiosaurus*, the skeleton of *Ursus spelæus* from Sundwig, Westphalia, the fossils from the Lake District, and the specimens of Flax in different stages of growth and manufacture, require special mention.

Mr. John Manning joined the Council in 1869, and since that period took a constant share in its proceedings. By his decease, his colleagues have to regret the unexpected removal of a sincere friend of the Society.

The elevation of Canon Woodford to the see of Ely has necessarily prevented his re-election to the office of President, and deprived the Society of the services of one who, from his first coming into residence, had shewn a warm interest in its welfare.

By the lamented death of Prof. Phillips, the Society loses one of its oldest and most valued Honorary Members. It is unnecessary to notice here his eminent services to Geological science; but it is of interest to remark that his first course of lectures on Geology was delivered in the Lecture Hall of this Society in December and January, 1825-6. One of the Hon. Secretaries and the Curator attended the funeral at York on April 30th, as a last mark

of respect from the Society. Prof. Phillips had been an Honorary Member exactly fifty years.

It will be remembered that the Rating Bill introduced by Government in the last session of Parliament proposed to remove the exemption from rates enjoyed by scientific and literary societies for upwards of thirty years. The change appeared to the Council of this Society injurious and dangerous to many institutions which have long done good work in the dissemination of scientific knowledge. The imposition of an unexpected tax, proportionate not to the income of a society, but to its fixed capital, would obviously discourage any extension of premises, while it would cripple the operations of many small institutions. The Council addressed petitions to the Houses of Parliament, and explained their views to several influential members of both. Aided as they were by similar representations from other Philosophical Societies, and especially from the Yorkshire Union of Mechanics' Institutes, the officers of the Society received several promises of assistance. The measure was rejected by the House of Lords on other grounds, and it is to be hoped that the resistance offered by the societies concerned may have its effect in preventing the re-introduction of a similar clause whenever the question of local taxation may again be considered by Parliament. The Council have subsequently addressed a memorial to the General Committee of the British Association, requesting that body, through its Parliamentary Committee, to watch over any future legislation which shall concern the interests of local scientific bodies.

The fourth Report of the Royal Commission on Scientific Instruction and the Advancement of Science discusses among other matters the present state of Provincial Museums, and the means of rendering them more useful. The Commissioners recommend :—

"That, in connection with the Science and Art Section of the Education Department, qualified naturalists be appointed to direct the collection of specimens in order to supply whatever deficiencies exist in the more important provincial museums; and also in order to organize typical Museums, to be sent by the Department of Science and Art into the provinces to such Science Schools as may be reported to be likely to make them efficient instruments of scientific instruction.

"That a system of inspection of provincial museums be organised with a view of reporting on their condition, and on the extent to which they are usefully employed, and whether the conditions of the loan or grant from the Department of Science and Art have been fulfilled."

Your Council are glad to recognize in these recommendations a possible means of distributing the scientific treasures of the nation in a more equitable and advantageous manner. They believe further that suggestions from qualified inspectors would greatly increase the value of most of our provincial collections. Some attention to the interests of secondary education, especially in the large centres of industry and population, will probably be seen hereafter to belong to the legitimate work of the Education Department. The growing completeness and efficiency of the State provision for primary education will conciliate some who might formerly have looked with distrust upon a scheme for promoting scientific instruction by means of State aid. It will also prepare a class of students capable of profiting by increased facilities for training in science.

The Commissioners also recommend :—

"That the establishment of lectures on Science, accessible to all classes on the payment of a small fee, should be promoted by the Government in the great centres of population.

"That the proposed lectures be of two kinds (1) lectures of an elementary character on the general principles and most important

facts of Science; (2) lectures specially intended for the working classes on the application of Science to the arts and industries of the country."

In a previous Annual Report the Council alluded to the proposed scheme for the establishment of a College of Science for Yorkshire. Within the past few days the Donors have met in this Hall, and have adopted a Constitution for their undertaking. The Council recognize in the College the basis of a powerful and lasting influence for the advancement of Science in this town and district, and believe that before long such influence will re-act in a direct and favourable manner upon our own Society.

A Summary of Meteorological Observations is appended. It is necessary to call the attention of the Members and Subscribers to the fact that by special resolution of the Council the financial statement is this year made up to the end of April, and that it is proposed in future to present it complete at the Annual Meeting. This year the receipts and expenditure given in the balance-sheet cover a period of ten months only.

Summary of Meteorological Observations taken at the Philosophical Hall, Leeds, during the year 1873.

1873.	Mean Temperature.	Mean Height of Barometer.	Total Amount of Rain in Inches.
January	40·6 Fah.	29·476	2·367
February	36·4 ,,	29·956	0·878
March	40·9 ,,	29·654	2·278
April	46·8 ,,	29·877	0·478
May	51·0 ,,	29·768	2·194
June	59·3 ,,	29·790	1·126
July	65·1 ,,	29·740	2·615
August	61·3 ,,	29·709	1·957
September	54·2 ,,	29·756	0·627
October	47·7 ,,	29·615	1·844
November	44·2 ,,	29·710	2·256
December	43·2 ,,	30·022	0·335

The mean monthly temperature was 49·2°.

The mean monthly height of the barometer was 29·756 inches.

The total rainfall for the year was 18·955 inches.

The greatest degree of heat, as indicated by the thermometer in the sun, was 101° on July 22; the greatest in the shade was 96° on July 22; and minimum 15° on February 25.

The greatest barometric pressure was on February 18, being 30·611 inches, the temperature of the mercury being 50°; the least pressure was on January 20, being 28·241 inches, the temperature of the mercury being 46°.

The greatest fall of rain was on November 6, being ·723 inches.

Latitude, 53° 48′ 20″ N.; longitude, 1° 33′ W. Height of the cistern of the barometer above the mean level of the sea, 137 feet; height of the rain-gauge above the street, 46 feet.

LEEDS PHILOSOPHICAL AND LITERARY SOCIETY

STATEMENT OF RECEIPTS AND EXPENSES FOR TEN MONTHS, 1873-4

(JULY 1ST, 1873, to APRIL 30TH, 1874)

RECEIPTS.	£	s.	d.	£	s.	d.
To Curator's Balance	70	4	2			
				70	4	2
To Subscriptions of—						
,, 86 New Proprietary Members, at 21*s.*	90	6	0			
,, 1 ditto (1874-5) ..	1	1	0			
,, 71 New Ordinary Members, at 21*s.*...	74	11	0			
,, 13 Old Ordinary Members, at 42*s.*...	27	6	0			
,, 203 Old Annual Subscribers, at 21*s.*...	213	3	0			
,, 36 New Annual Subscribers, at 21*s.*	37	16	0			
,, 168 Old Annual Subscribers, at 7*s.* 6*d.*	63	0	0			
,, 34 New Annual Subscribers, at 7*s.* 6*d.*	12	15	0			
,, Arrears	5	5	0			
				525	3	0
,, Rent of Cellars	50	0	0			
,, Rents of Lecture Room	91	15	0			
				141	15	0
,, Receipts for the Museum	133	19	7			
,, Receipts for the Conversazione ..	15	15	0			
				149	14	7
,, Sale of Descriptive Guides	2	13	8			
,, Donation (T. Emsley, Esq.), 1871-2..	10	0	0			
,, ,, ,, 1872-3..	10	0	0			
,, ,, the late John Manning, Esq.	5	10	0			
,, Sale of Forfeited Shares	60	0	0			
,, Coal Fossil Fund	17	11	0			
,, Sundries	0	8	9			
				106	3	5
				£993	0	2

DISBURSEMENTS.	£	s.	d.	£	s.	d.
By Balance due to Bank (July 1st, 1873)	145	18	4			
				145	18	4
,, Repairs	27	16	6			
,, Taxes and Rates	2	3	0			
,, Insurance	13	15	0			
,, Coals	14	13	2			
,, Gas	14	11	0			
				72	18	8
,, Salaries—Curator	250	0	0			
,, Curator's Assistant ..	34	8	0			
,, Porter	58	14	6			
				343	2	6
,, Collections—Geological	35	0	6			
,, Zoological	7	0	6			
,, Archæological	2	10	6			
,, Library	14	14	10			
				59	6	4
,, Postages	16	16	9			
,, Printing and Advertising	95	15	0			
,, Lectures	125	18	0			
,, Conversazione	49	13	8			
,, Bankers' Commission	6	18	0			
,, Sundries	38	5	10			
				333	7	3
,, Balances—Bankers'	6	0	7			
,, Curator's	32	6	6			
				38	7	1
				£993	0	2

FRAS. M. LUPTON, }
JOHN MARSHALL, } AUDITORS.

LIST OF DONATIONS AND ADDITIONS

TO THE

SOCIETY'S MUSEUM AND LIBRARY

1873–4

GEOLOGY AND MINERALOGY

Permian fossils, viz :— Phyllopora Ehrenbergii (2 specimens) Fenestella retiformis (6 specimens) Calamopora macrothi (2 specimens) Synocladia virgulacea? Miliola pusilla (8 specimens) Cyathocrinus ramosus (6 specimens) Macrodon striata (2 specimens) Pecten pusillus (5 specimens) Monotis speluncaria (4 specimens) Productus horridus (12 specimens) Discina Koninckii (2 specimens) Strophalosia lamellosa (7 specimens) Lingula Credneri (5 specimens) Camarophoria crumena (7 specimens) Terebratula elongata (8 specimens) Spirifera alata (4 specimens)	Mr. Thomas Parker, Oldham.
Cast of Skull of Labyrinthodont (Loxomma Allmanni), from Blue Flats Ironstone Measure, Old Park Pits, Waggoner's Fold, near Dawley, Salop	Mr. George Maw, Benthall Hall, Broseley.
Gyracanthus formosus, from the Ironstone Measures, Tingley	Mr. W. H. Eagland.
Goniatites Listeri, from Holmfirth.....	Mr. Isaac Exley, Holmfirth.
Collection of Fishes and Labyrinthodonts, from Newsham, including remains of Pteroplax, Anthracosaurus, Ctenodus, &c.	Dr. Chadwick, Mr. Filliter, Mr. J. Rawlinson Ford, Dr. Heaton, Mr. Ikin, Mr. John Jowitt, Mr. F. M. Lupton, Mr. Manning, Mr. Reynolds, Mr. John Rhodes, Mr. T. W. Stansfeld, Mr. R. B. Turner, Mr. Wilson.

Nautilus (Mountain Limestone) Bones of Ichthyosaurus Diplopterus (Devonian) 2 Specimens of Cannel Coal Euomphalus rotundatus (Mountain Limestone) Ammonites Parkinsoni (Oolite) Crystals of Fluor Vesicular Trap Mica Schist Ostrea grandis Columnar Dolomite and five other specimens	Purchased by the Society.
Montlivaltia Victoriæ (5 specimens), Middle Lias, Cherrington, Worcestershire Montlivaltia mucronata (3 specimens), Lower Lias, Fenny Compton, Warwickshire 4 Slabs of Archæoniscus Brodiei, Middle Purbeck, Isle of Wardour, Wilts.	Rev. P. B. Brodie, M.A., Rowington, near Warwick.
Tusk of Mammoth (Elephas primigenius) and canine of Hippopotamus major, from a fissure in a limestone quarry at Lothersdale	Mr. P. W. Spencer, Lothersdale.
Coal Shale, with Neuropteris heterophylla, stained red by infiltration? Conisbro' ...	Mr. Simpson, Fire-Clay Works, Conisbro'.
Piece of the Rhætic bone-bed, Westbury, with Fish and Reptilian Remains	Mr. W. C. Lucy, Grange Court, Gloucester.
Rock specimens, from the Whin Sill of Northumberland	Sir W. C. Trevelyan, M.A., F.R.S.
Collection of Minerals, viz. :— Fine Crystal of Quartz Towanite upon Quartz Lazulite in Quartz Pyrite upon Quartz (2 specimens) Native Gold in Quartz Native Silver in Agate Sulphide of Antimony on Quartz	Mr. W. Sykes Ward, F.C.S.

ZOOLOGY AND BOTANY

Fasciated Stem of Asparagus.....	Dr. Greenhow.
Pair of Antelope's Horns (Strepsiceros) ...	Mr. T. Wilson, M.A.
Kestrel.....	Mr. T. W. Stansfeld.
Fresh Specimen of Zamenis hippocrepis ...	Mr. F. Greenwood.
Hyalonema mirabilis, Enosima, Japan	Mr. G. Alderson Smith, Cottingley Hall, Bingley.

Two live Hedgehogs	Mr. T. W. Stansfeld.
Acmæa testudinalis, from Whitburn. (Perhaps transported in ballast.)	Mr. T. Wilson, M.A.
Live Specimens of Lacerta agilis	Mr. Henry Watts.
Macroscelides proboscideus, South Africa...	Mr. Oates.
Sparrow Hawk, shot at Bramhope.....	Mr. T. W. Stansfeld.

ARCHÆOLOGY AND ETHNOLOGY

Ten-dollar Note of the Confederate States..	Mr. Saville.
Medal, with inscription "To Hanover," 1853; penny of George III., 1779; and penny and halfpenny (illegible), found in Sheepscar Beck	Mr. Sheldon.
Kaffir Walking-staves.....	Mr. T. Pollard.
Further donation of 34 Flint Implements, found at Adel, near Leeds	Mr. Twigg, Reformatory, Adel.

TECHNOLOGY

Specimen of Gum Animi, containing Insects	Mr. J. A. Hirst.
Specimens of Gum Animi	Mr. J. A. Hirst.
Seventeen preparations illustrative of Sugar and its manufacture Piece of Sugar Cane	Mr. H. Pocklington.

MISCELLANEOUS

Engine-Counter, for registering the admissions to the Museum	Messrs. T. R. Harding and Sons.
New Printing Press and two founts of Type (Ancient Primer and Double Pica Ancient)	The late Mr. Manning.
Embossing Press.....	The late Mr. Manning.
Photographic Portrait of the late James Garth Marshall, Curator in Geology to this Society	Mr. J. I. Ikin.

PUBLICATIONS

Reliquiæ Aquitanicæ, Parts XII., XIII., XIV.	Execs. of the late Henry Christy, Esq.
Nuova Italia	John McCosh, M.D., Wells House, Ilkley.
Trigonometrical Survey of India, Vol. I. ...	Her Majesty's Secretary of State for India, India Office, London.

Catalogue of Greek Coins, Italy Catalogue of Hemiptera Heteroptera, Part VIII. Hand-list of Edentate, Thick-skinned, and Ruminant Mammals Catalogue of Prints and Drawings, Div. I., Vol. II. Fac-similes of Ancient Charters.....	Trustees of the British Museum.
4th and 5th Quarterly Reports of the Sub-Wealden Exploration Committee	Mr. E. H. Willett, Brighton.
9th Annual Report of the Board of State Charities of Massachusetts	The Board of State Charities of Massachusetts.
36th Annual Report of the Board of Education of Massachusetts	The Board of Education of Massachusetts.
19th and 20th Annual Reports of the Board of Agriculture of Massachusetts.....	The Board of Agriculture of Massachusetts.
Report of the U.S. War Department for 1872	Mr. A. J. Myer, Brigadier-General and Chief Signal Officer, U.S. Army.
Publications relating to Patents of Victoria, viz. :— Patents and Patentees, Vols. I. to VI. Abstracts of Specifications of Patents, Vols. I. and II. Statistical Tables of Victoria Abstracts of English and Colonial Specifications for the Preservation of Food, 1870.....	The Registrar-General of Victoria, New South Wales.
U.S. Geological Survey of Montana, Idaho, Wyoming, and Utah, 1872.....	Mr. F. V. Hayden, U.S. Geologist, Washington.
Brief Sketches of the Parishes of Booterstown and Donnybrook in Co. Dublin, Parts III. and IV.	Rev. B. H. Blacker, M.A., Booterstown, Co. Dublin.
Algebra identified with Geometry	Mr. A. J. Ellis, F.R.S., London.

PERIODICALS

WEEKLY

Nature	Purchased.
Leader (Australian Newspaper).....	Publishers.
Australasian.....	Publishers.

MONTHLY

American Journal of Science and Arts Annals and Magazine of Natural History Geological Magazine	Purchased.

Illustrated Australian News	Publishers of the "Leader."
Monthly Notices of the Proceedings of the Royal Society of Tasmania	Royal Society of Tasmania.
Journal of the Chemical Society	Chemical Society.
Bulletin of the Essex Institute	Essex Institute, U.S.A.
Monthly Notices of the Royal Astronomical Society.....	Royal Astronomical Society.

QUARTERLY

Quarterly Journal of Science Quarterly Journal of Microscopical Science	Purchased.
Quarterly Journal of Geological Society ...	Geological Society.
Quarterly Returns of Marriages, Births, and Deaths	Registrar-General.
Journal of the Royal Historical and Archæological Association of Ireland	Royal Historical and Archæological Association of Ireland.
Journal of the Anthropological Institute ...	Anthropological Institute.
Proceedings of the Geologists' Association .	Geologists' Association.

ANNUALLY

Philosophical Transactions	Purchased.
Mineral Statistics of the United Kingdom .	Director General of the Geological Survey.
Communications to the Yorkshire Philosophical Society	Yorkshire Philosophical Society.
Proceedings of the Glasgow Philosophical Society.....	Glasgow Philosophical Society.
Mittheilungen der kais. und königl. geographischen Gesellschaft in Wien	Royal Imperial Geographical Society of Vienna.
Proceedings of the Academy of Natural Sciences of Philadelphia.....	Academy of Natural Sciences of Philadelphia.
Radcliffe Astronomical and Meteorological Observations	Radcliffe Trustees.
Proceedings of the Royal Society of Edinburgh Transactions of do.	Royal Society of Edinburgh.
Publications of the Ray Society.....	Purchased.
Abstract of the Proceedings of the Liverpool Geological Society	Liverpool Geological Society.
Transactions of the Edinburgh Geological Society.....	Edinburgh Geological Society.

Kongliga Svenska Vetenskaps Akademiens Handlingar Do. do. Lefnadsteckningar Öfversigt af Kongliga Vetenskaps Akademiens Förhandlingar	Royal Swedish Academy of Sciences.
Natural History Transactions of Northumberland and Durham	Natural History Society of Northumberland, Durham, and Newcastle-upon-Tyne, and Tyneside Naturalists' Field Club.
Proceedings of the Berwickshire Naturalists' Club.....	Berwickshire Naturalists' Club.
Publications of the Palæontographical Society.....	Purchased.
Proceedings of the Liverpool Literary and Philosophical Society	Liverpool Literary and Philosophical Society.
Proceedings of the Boston Society of Natural History Memoirs of do.	Boston Society of Natural History.
Transactions of the Historic Society of Lancashire and Cheshire	Historic Society of Lancashire and Cheshire.
Memoirs of the Royal Astronomical Society	Royal Astronomical Society.
Greenwich Observations.....	Lords of the Admiralty.
Transactions and Proceedings of the New Zealand Institute.....	New Zealand Institute.
Proceedings of the Warwickshire Naturalists' and Archæologists' Field Club	Warwickshire Naturalists' and Archæologists' Field Club.
Annual Report and Papers of the Associated Architectural Societies.....	Associated Architectural Societies.
Journal and Annual Report of the Royal Institution of Cornwall.....	Royal Institution of Cornwall.
British Association Report.....	British Association.
Annual Report of the Royal Cornwall Polytechnic Society	Royal Cornwall Polytechnic Society.
Annual Report of the Smithsonian Institution	Smithsonian Institution.
Annual Report of the Yorkshire Philosophical Society	Yorkshire Philosophical Society.
Annual Report of the Warwickshire Natural History and Archæological Society	Warwickshire Natural History and Archæological Society.
Annual Report of the U.S. Patent Office...	United States Patent Office.

Annual Report of the Hull Literary and Philosophical Society	Hull Literary and Philosophical Society.
Annual Report of the Belfast Naturalists' Field Club	Belfast Naturalists' Field Club.
Annual Report of the Liverpool Free Public Library, Museum, and Schools	Free Library, Liverpool.
Annual Report of the Geologists' Association	Geologists' Association.
Annual Report on the Sanitary Condition of Leeds	Medical Officer of Health for Leeds.
Annual Report of the Minnesota Historical Society	Minnesota Historical Society.
Annual Report of the Museum of Comparative Zoology at Harvard College, U.S.A.	Museum of Harvard College, Cambridge, Mass.
Annual Report of the Birkenhead Literary and Scientific Society	Birkenhead Literary and Scientific Society.
Annual Report of the Winchester College Natural History Society	Winchester College Natural History Society.

Zeitschrift für Wissenschaftliche Zoologie (4 pts. a year)	Purchased.
Canadian Journal (3 or 4 pts. a year)	Canadian Institute, Toronto.
Yorkshire Archæological and Topographical Journal	Yorkshire Archæological and Topographical Association.
Proceedings of the Royal Society	Royal Society.
Smithsonian Miscellaneous Collections Do. Contributions to Knowledge	Smithsonian Institution.
Memoirs of the Manchester Literary and Philosophical Society Proceedings do. (about fortnightly, Oct. to April	Manchester Literary and Philosophical Society.
Journal of the Royal Dublin Society (about once a year)	Royal Dublin Society.
Proceedings of the Royal Institution (2 pts. a year)	Royal Institution of Great Britain and Ireland.
Proceedings of the Zoological Society (3 pts. a year—May, Oct., March)	Zoological Society.
Journal of the Architectural, Archæological, and Historic Society of Chester	Architectural, Archæological, and Historic Society of Chester.
Edinburgh Astronomical Observations	Royal Observatory, Edinburgh.

Transactions of the American Philosophical Society Proceedings do. (several pts. a year)	American Philosophical Society.
Abridgements of Specifications of Patents, with Indices	Commissioner of Patents.
Transactions of the Academy of Sciences of St. Louis	The Academy of Sciences of St. Louis, U. S.
Oversigt over det Kongelige Danske Videnskabernes Selskabs Forhandlinger.....	Royal Danish Society of Sciences.
Proceedings of the Royal Irish Academy...	Royal Irish Academy.
Journal of the Royal Geological Society of Ireland.....	Royal Geological Society of Ireland.
Transactions of the Manchester Geological Society	Manchester Geological Society.

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1874-5

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Aldam, W.	Frickley Hall, Doncaster.
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Baines, Edward	St. Ann's Hill, Burley, near Leeds.
Barran, John	Chapel-Allerton Hall.
Battye, James C.	Yeadon.
*Beckett, William.	
Bilbrough, Alfred	15, Beech Grove Terrace.
Binks, Benjamin, Jun.	York Place.
Broadhead, Henry	Chapel-Allerton.
Brown, James (2 shares)	Rossington, Doncaster.
Brown, Samuel James (2 shares)	Loftus Hill, near Knaresborough.
Burton, Miss	Roundhay.
Calverley, Edmund (2 shares)	Oulton Hall.
Charlesworth, C. H.	Settle.
Chorley, Henry	Park Square.
Clapham, Samuel	19, Cookridge Street.
Coghlan, William	Oak Villa, Grosvenor Road.
Cudworth, John W.	52, Mount Preston.
Denison, William Beckett	Meanwood Park.
Dibb, Thomas Townend	Little Woodhouse.
Eddison, John Edwin, M.D.	29, Park Square.
Ellershaw, John	Oakfield, Kirkstall.
Ellershaw, Walter	3, Cromer Terrace.
Empson, Christopher	Bramhope Hall.
Ford, Robert Lawson	Adel Grange.

George, Thomas Willington . .	Chapeltown.
Goodman, Benjamin . . .	Gledhow House.
Gott, Rev. John, D.D. (2 shares) .	Woodsley House.
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Greenhow, Thomas Michael, M.D.	Newton Hall.
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Heaps, John William . . .	Terrace House, Chapeltown Road.
Heaps, Charles Denison . .	Woodhouse Lodge, Woodhouse Lane.
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Hirst, Joseph	Wharfedale Lawn, Wetherby.
Holdforth, Walter. . . .	Knaresborough.
Holt, Joseph	Wedderburn House, Harrogate.
Horsfall, John, F.R.C.S. . .	Albion Street.
Ingham, Constantine . . .	Clarendon Place.
Ingham, William	Belmont, Chorley Lane.
Jowitt, John	Harehills Grove, Potternewton, near Leeds.
Joy, William Glover . . .	Headingley.
Kinnear, Thomas John, M.A. .	Horsforth Hall.
Latimer, John	St. Mark's Villas, Woodhouse Lane.
Luccock, John Darnton. . .	54, North Street.
Lupton, Francis	Beechwood, Roundhay.
Lupton, Sydney	Harehills, Potternewton.
Makins, Charles	17, Craven's Hill, Regent's Park, London, N.W.
Marshall, Edmond Henry . .	Weetwood Hall.
Marshall, Henry Cowper . .	Do.
Marshall, Arthur, F.G.S. . .	Headingley House.
*Marshall, J. G., F.G.S. (2 shares) .	
Marshall, Victor Alexander Ernest, B.A.	Headingley House.
Marshall, R. D.	Cookridge Hall.
Nunneley, J. A., M.B. . . .	22, Park Place.
*Rhodes, Rev. J. Armitage, M.A. .	
Rhodes, John	Potternewton House.
Shepherd, John	Allenby House, Tadcaster.

*Smith, John Metcalfe . . .	
Smith, Henry Stooks . . .	Headingley.
Tatham, George	Springfield Mount.
Teale, Thomas Greenwood . .	Bentley House, Meanwood.
Teale, Mrs.	St. James' Lodge.
Tottie, John William . . .	Coniston Hall, Bell Busk, nr. Skipton.
Waite, James Butler . . .	Belvidere House, New Leeds.
Walker, Edward	15, Springfield Mount.
Ward, William Sykes, F.C.S. . .	Denison Hall, Hanover Square.
Whiteley, William	Butt's Cottage, Armley.
*Wilson, Richard Basset.	

NEW PROPRIETARY MEMBERS,

WITH AN ANNUAL SUBSCRIPTION OF ONE GUINEA.

Atkinson, Daniel Hopkin . .	16, Brunswick Place.
Atkinson, Edward, F.L.S., F.Z.S. .	2, Albion Place.
Baines, Frederick	Weetwood.
Balme, E. B. Wheatley . . .	Cote Wall, Mirfield.
*Beckett, William (8 shares).	
Bilbrough, Joseph Brooks . .	15, Beech Grove Terrace.
Birchall, Edward	7, Park Square.
Boothroyd, W.	Grove Hill, Headingley.
Brown, William (2 shares) . .	Bardon Grange, Weetwood.
Buckton, George	Roundhay.
Buckton, Joshua	Broomhill, Moor-Allerton.
Burkill, Isaac Henry . . .	Allerton Hall, Chapeltown.
Butler, J. O.	Abbey House, Kirkstall.
Chadwick, Charles, M.D., D.C.L., F.R.C.P.	35, Park Square.
Chadwick, William	Arksey, Doncaster.
Cliff, Joseph	Wortley.
Connor, Mrs.	Gledhow Hall.
Conyers, W. H.	Ilkley.
*Cooper, John (2 shares).	
Craven, Joseph	Clifton House, Beeston Hill.
Crofts, John	Adel.
Curwood, Capel Augustus . .	De Grey Terrace.

Donisthorpe, G. E. . . .	Harrogate.
Ely, The Lord Bishop of . .	The Palace, Ely.
Fairbairn, Sir Andrew, M.A. .	Goldsborough Hall, Knaresborough.
Farrer, James	Ingleborough House, Clapham, near Lancaster.
Ferguson, William . . .	25, Albion Street.
Filliter, Edward, M.Inst., C.E., F.G.S.	West Mount House, Clarendon Road.
*Gott, John (10 shares).	
Hall, Thomas	Heath Cottage, Moor-Allerton.
Hargrave, James	Willaston House, Harrogate.
*Hargreaves, S. B.	
Harvey, William	Bellevue Terrace.
Henderson, Rev. W. G., D.C.L. .	Grammar School.
Hey, Samuel, F.R.C.S. . .	1, Albion Place.
Holroyd, James	Gledhow.
Howarth, Rev. William Lee . .	Elmwood House.
Hudson, Henry	Oakwood, Roundhay.
Hudson, Robert John . . .	Burley-in-Wharfedale.
Ingham, Charles Alfred. . .	Belmont, Chorley Lane.
Ingham, Henry Constantine . .	Lyddon Terrace.
Jowitt, Robert Benson . . .	Elmhurst, Potternewton.
Joy, Walker	3½, Queen Square.
Kennedy, Thomas Stewart . .	Meanwood.
Kitson, James	Elmete Hall, Roundhay.
Kitson, J. Hawthorne . . .	Hyde Terrace.
Kitson, James, Jun. . . .	Headingley.
Kitson, Frederick William . .	Burley, near Leeds.
Latchmore, Edward . . .	4, Ridge Mount, Cliff Road.
Leather, J. T.	Leventhorpe Hall.
Ludolf, Henry	Headingley Lane.
Lupton, Arthur	Headingley.
Lupton, Joseph	Chapel-Allerton.
Lupton, John	Moorlands, Headingley.
Lupton, Darnton	Harehills, Potternewton.
Lupton, Francis Martineau, M.A. .	Wellington Street.
March, Joseph Ogden . . .	Beech Grove House, Woodhouse Lane.

Margersion, J. L. . . .	4, Porchester Gate, Bayswater Road, London.
Marsden, H. R.	Avenue House, Woodhouse Lane.
Marshall, Thomas, M.A. . .	Highfield, Chapel-Allerton.
Marshall, John, M.A. . . .	Bentley Lodge, Meanwood.
Marshall, Stephen Albert . .	Weetwood.
Maude, Edmund	Middleton Lodge, Beeston.
Meggeson, George . . .	6, Cromer Terrace.
Milner, Henry W. B. . . .	Kirkstall Grange.
Nickols, Richard	Bramley.
*Nicholson, Mrs., Roundhay (2 shares).	
Nunneley, A. G.	9, Beech Grove.
Oxley, Henry	Weetwood Villa, Weetwood Road, Far Headingley.
Passavant, P. W.	De la Haye House, Chapeltown Rd.
Price, William Nicholson . .	7, East Parade.
Prichard, W.	Bishopgate Street.
Reynolds, Richard, F.C.S. . .	Cliff Lodge, Hyde Park.
Sagar-Musgrave, J. . . .	Red Hall, Shadwell.
Schunck, Edward	Adel.
Stansfeld, T. W. (2 shares) . .	Weetwood Grove.
Stewart, G. M.	43, Hillary Street.
Taylor, George	Buckingham House, Headingley.
* Taylor, Samuel.	
Teale, T. Pridgin, M.A., F.R.C.S.	North Grange, Headingley.
Teasdale, Washington . . .	Rosehurst, Headingley.
Tennant, Robert, M.P. . .	Scarcroft Lodge, Shadwell.
Tennant, Thomas . . .	21, Blenheim Terrace.
Tetley, F. W.	Foxhill, Weetwood.
Turner, Richard Bickerton . .	Bank of England, South Parade.
Wailes, William	Harrogate.
Watson, William	Elmwood, Harrogate.
Whitaker, John (2 shares) . .	Messrs. Brown & Co., Commercial St.
Whiting, John	Regent Villas, Headingley.
Wicksteed, Joseph Hartley . .	3, Eldon Terrace, Woodhouse Lane.
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Wood, Richard	Newton Villa, Potternewton.

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WITH AN ANNUAL SUBSCRIPTION OF TWO GUINEAS.

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Atkinson, J. H.	14, East Parade.
*Bloome, Matthew.	
Bowers, Rev. T. S., M.A. . .	Kirkstall.
Buckton, Joseph	Moorland Terrace.
Bulmer, John	4, Winfield Mount, Potternewton. Lane.
Cadman, William	Roundhay.
Garlick, William	6, Hyde Terrace.
Hewitt, E. W.	Harrogate.
Ikin, Joshua Ingham, F.R.C.S. .	19, Park Place.
Martin, Samuel Dickinson . .	Beech Grove, Harrogate.
Ramskill, Josiah, M.R.C.S. . .	13, Meadow Lane.
Stratten, Rev. J. R. . . .	Park Square.
Swaine, W. E.	Highfield House, Woodhouse Lane.
Sykes, Henry Marshall . . .	Roundhay.

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Allbutt, T. Clifford, M.A., M.D., F.S.A., F.L.S.	Virginia Road.
Baily, Walter, M.A. . . .	24, Hyde Terrace.
Baines, Edward Manwaring . .	6, Ashwood Terrace, Headingley Hill.
Barr, Frederick Horatio. . .	Mount View, Headingley Lane.
Barr, Mrs. Robert . . .	Mount Pleasant.
Barwick, J. M.	Glen View, Shipley.
Benson, John	19, Albion Street.
Best, William	18, Lyddon Terrace.
Bolland, W. T.	Hunslet Lane.
Booth, Joseph	Grosvenor Road, Headingley Lane.
Botterill, John	Flower Bank, Burley.
Bousfield, Charles Edward . . .	3, Beech Grove Terrace.
Briggs, Riley	Springfield Mount.
Carpenter, Rev. J. Estlin, M.A. . .	7, Lifton Place.

Carter, Robert Meek, M.P.	Woodhouse Lane.
Clay, George	8, Blenheim Square.
Corson, George	Far Headingley.
Dawson, Edwin	17, Blenheim Terrace.
Denny, T. G.	46, Burley Street.
Dixon, J. W.	13, Vernon Road.
Eddison, Frederick	The Manor, Adel.
Eddison, Robert William	Headingley.
Firth, William	Burley Wood House.
Ford, J. Rawlinson	Adel Grange.
Ford, T. B. P.	Ilkley.
Gascoigne, F. C. Trench	Parlington Park.
*Greenwood, Thomas.	
Hargrave, John	St. Ann's Lodge, Burley, near Leeds.
Hepper, John	Clareville, Headingley.
Holt, Henry Percy	Cavendish Road.
Holt, Joseph	Wedderburn House, Harrogate.
Horsman, Thomas, B.A.	3, High Royd, Belle Vue Road.
Illingworth, William	Headingley Cliff.
Ingham, Tom	Belmont, Chorley Lane.
Irwin, Edward	Preston House, Tonbridge Street.
Irwell, Julius	Highfield House, Headingley.
Jackson, Rev. Edward, M.A.	9, Brunswick Place, North Street.
*Jackson, William S.	
Kempe, Arthur	29, Brunswick Terrace.
Kemplay, Miss	St. John's Place.
Lambert, Joseph	Rose Court, Headingley Lane.
Lawson, Thomas	Potternewton.
Lawson, John	Beech Grove Hall.
Leather, J. W.	Newton Green, Chapeltown.
Ledgard, William	Eller Close, Roundhay.
Lupton, Joseph	Armley.
*Manning, John.	
McCheane, Rev. J. H., M.A.	Trinity Parsonage, Hyde Terrace.
March, George	Oaklands, Scarcroft.
Middleton, John William	Mount Terrace, Potternewton.
Morley, Herbert Ogle	20, Victoria Terrace.
Myers, William Beswick	Gristhorpe, near Filey.

Myers, W. C.	Grove House, Roundhay.
Nelson, Henry	St. John's Cottage, St. John's Road.
Nunneley, Thomas	10, Park Place.
Nussey, George Henry	St. Ann's Lane, Burley, near Leeds.
Nussey, Obadiah	Morley House, Headingley.
Nussey, Thomas	Virginia House, Headingley Hill.
Nussey, Samuel Leathley	Potternewton Hall.
Nussey, Peter	Spring Ville, Shaw Lane, Headingley.
*Payne, R. E.	
Ramsbotham, S. H., M.D.	16, Park Place.
Raynar, John	37, Lyddon Terrace.
Read, Miss	Chapel-Allerton.
Riley, Thomas	7, Blenheim Square.
Robinson, Richard	Ousthorpe Villa, Clarendon Road.
Robinson, R. H.	Kirkstall Hall.
Sharpe, Miss	21, Victoria Place, Camp Road.
*Simpson, R. W.	
Smith, John Edward	Park Villas, Potternewton.
Smith, William Farrar	Hope Villa, Woodhouse Lane.
Somers, Francis	Fountain Terrace.
Stables, James	Horsforth.
*Talbot, George.	
Temple, Rev. Henry, M.A.	St. John's Vicarage, Woodhouse Lane.
*Tennant, Joseph Mason.	
Titley, Anthony	Manor House, Victoria Grove, Headingley.
Titley, T. A.	Gledhow.
Tottie, J. W.	Coniston Hall, Bell Busk, nr. Skipton.
Townsley, Richard	6, Springfield Mount.
*Wade, John.	
*Walker, Thomas (Headingley Hill).	
Whiteley, Thomas	Blenheim Square.
Young, John	Moor Hill Farm, Headingley.

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Ambler, T.	9, Park Place.
Appleton, Henry	Adel Lodge.

Armistead, Edwin . . .	Albion Street.
Asquith, John Robert . . .	Bond Place.
Asquith, J. W.	
Atkinson, Miss	Clarendon Road.
Atkinson, J. T.	Selby.
Atkinson, Tindal	Pease's Buildings, South Parade.
Atkinson, Law	Clarendon Road.
Baines, J. W.	Oatlands, Burley.
Barran, Charles	Chapel-Allerton Hall.
Barran, John, Jun. . . .	5, Cromer Terrace.
Bartholomew, W. H., C.E. . .	Albion Villas, New Leeds.
Bedford, James	Woodhouse Cliff.
Beverley, Mrs.	Grosvenor Terrace, Headingley.
Beverley, Robert	Woodsley Terrace.
Beverley, W. A.	17, St. John's Terrace.
Bickerdike, Rev. John, M.A. .	St. Mary's Vicarage, Beckett Street, Burmantofts.
Birchall, Oswald	Kirkstall Grove.
Braithwaite, James, M.D. . .	Clarendon Road.
Braithwaite, Richard Hale . .	Do.
Briscall, Henry	Springfield Mount.
Browne, J. C.	48, Briggate.
Bruce, William	Moorland Terrace.
Buckley, J. C.	10, Blenheim Terrace.
Buckton, Richard	Cumberland Lodge, Headingley Hill.
Bulmer, Charles	Blenheim Lodge.
Bulmer, Clifford Charles . .	Do.
Burton, F. H.	Newtown Works.
Butler, Edmund	Riseholme, Horsforth.
Calvert, John P.	6, Springfield Place.
Campbell, Archibald . . .	23, Hyde Terrace.
Carter, George	17, Green Mount Street, Beeston Hill.
Chadwick, W.	Merton Villa, Cardigan Road.
Champion, John	10, Springfield Place.
Chatwin, E. W.	1, Willow Grove Road.
Cheetham, W.	Woodbottom Cottage, Horsforth.
Clare, W., M.D.	Park Square.

Clark, Miss	S. L. Nussey, Esq., Potternewton Hall.
Clay, J. W.	16, Warwick Place.
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Conyers, Joseph	Castle Grove, Headingley.
Cooke, William	Moorfield House, Moor-Allerton.
Cooper, G. I.	Woodhouse Chemical Works.
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Crampton, W. T.	Woodland View, Chapeltown.
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Crawford, J. W.	Newton Lane.
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Crossley, Louis John	Halifax.
Croysdale, John	8, Brunswick Street.
Cuthbert, John	163, Woodhouse Lane.
Davids, T. W. Rhys	9, Richmond Road, Headingley.
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Davis, Edward	Milton Lodge, Far Headingley.
Dawson, William	Larchfield Mills, Hunslet Lane.
Denby, Alfred	West Hill, New Leeds.
Dixon, Robert Henry	25, Virginia Road.
Dixon, Henry	6, De Grey Road.
Dolan, John Cass	North Hill Road, Headingley.
Douglas, Dr.	7, South Parade.
Douglas, John	Beech Grove, Oulton.
Dufton, Arthur Wellesley	74, Springfield Place.
Eddison, John, C.E.	1, Osborne Terrace, Virginia Road.
Emsley, G. A.	Clarendon Mount.
Faber, A. de D.	3, Wesley Place, Headingley.
Fairley, Thomas, F.C.S.	East Parade.
Falcon, Thomas	Pudsey.
Farrar, Abraham, Jun.	115, Hyde Park Road.
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Ferns, Francis	Cliff Road.
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Fox, James, C.E.	Woodlands, Horsforth.

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Greenwood, W. F.	Park Villas, Hyde Park Road.
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Rayner, John	17, Vernon Road.
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Robinson, Thomas	Castleton Lodge, Armley.
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Wailes, Francis	2, Linton Terrace.
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Walker, Leasowe	Brunswick Place.
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Walker, A. T.	Newton Grove.
Walker, Henry	Oak House, Headingley.

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Dixon, Miss M. E.	Do.
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Granger, Miss	Do. do.
Granger, Miss Mary	Do. do.
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Haigh, Arthur	6, Woodsley Terrace.
Haigh, Miss	Do.

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Hodgson, Mrs. J. P.	10, De Grey Terrace.
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Hudson, Mrs.	Grey Stone House, Adwalton.
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Jowitt, Miss F.	Harehills Grove, Potternewton.
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Kirkby, Miss Ada	Do.
Kirkby, Miss Eleanor	Do.
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Lawson, Miss	Do.
Lawson, Miss M.	Do.
Lawson, Miss Kate	Do.
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Nelson, Miss M. E.	Do. do.
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Passavant, Miss	Do. do.
Passavant, Miss Camilla	Do. do.
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Richardson, Mrs.	30, Cliff Road.
Rider, Mrs. J.	High Royd, Belle Vue Road.
Robinson, Mrs. Alfred	49, Lofthouse Place.
Robinson, Mrs.	Castleton Lodge, Armley.
Robinson, Miss	Do.
Rooke, Miss	Newton Hill, Potternewton.
Rooke, Miss E. M.	Do. do.
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THE

FIFTY-FIFTH REPORT

OF

THE COUNCIL

OF THE

LEEDS

PHILOSOPHICAL & LITERARY

SOCIETY,

AT THE

CLOSE OF THE SESSION 1874-75.

Read at the Annual Meeting, May 4th, 1875.

LEEDS:
PRINTED AT THE OFFICE OF THE YORKSHIRE POST.

MDCCCLXXV.

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RESPECTING THE PROPERTY OF THE SOCIETY,

PASSED OCTOBER 8TH, 1860.

That in the event of a dissolution of this Society, its Property and Effects, whether real or personal, shall not be disposed of for the personal benefit of the Members, but shall be appropriated in such manner for the advancement of Science, Literature, or Art, in the town of Leeds, as shall be determined by a majority of the Members at an extraordinary Meeting to be convened for that purpose. But that no dissolution of the Society shall take place without the consent in writing, of a majority holding not less than two-thirds of the Proprietary Shares.

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Every person desirous of bequeathing to the Society any sum of Money, Specimens, Books, Instruments, or other Property, is requested to make use of the following Form :—

I give and bequeath to the Trustees for the time being of the Society established at Leeds, called "THE LEEDS PHILOSOPHICAL AND LITERARY SOCIETY," *for the use of the said Society, the sum of , to be paid out of such part of my personal Estate as I may legally charge therewith.* [Or here enumerate the Effects or Property intended to be bequeathed]. *And I direct that the Receipt of the Treasurer of the said Society for the time being, shall be an effectual discharge to my Executors for the said Legacy.*

REPORT OF THE COUNCIL

AT THE CLOSE OF THE

FIFTY-FIFTH SESSION.

The Council have again the satisfaction of reporting that the numerical strength of the Society continues to be well maintained. To facilitate accurate comparison in future years the present number of the different classes of Members is given in detail.

Original Proprietary Members (78 shares).....	71
New Proprietary Members (120 shares)	97
Ordinary Members	12
New Ordinary Members	87
Annual Subscribers of £1 1s.	240
Annual Subscribers of 7s. 6d.	207
Total.....	714

In last year's report the total was 702.

The Council acknowledge with thanks a donation of £25 from H. R. Marsden, Esq., Mayor of Leeds; and a further donation of £10 from Thomas Emsley, Esq., of Burley-in-Wharfedale.

The following Lectures have been delivered before the Society during the past Session :—

1. "On the comparative advantages and the present position of Literary and Scientific Studies." The Very Rev. W. C. Lake, D.D., Dean of Durham. *Read Oct. 27th*, 1874.
2. "Palæozoic and Neozoic Corals." P. Martin Duncan, M.D., F.R.S., Professor of Geology, King's College, London. *Read Nov. 3rd*, 1874.

3. "The Approaching Transit of Venus." W. Huggins, D.C.L., LL.D., F.R.S. *Read Nov. 17th*, 1874.
4. "The Discovery of the Temple of Diana, and the other results of Excavations at Ephesus." J. T. Wood. *Read Nov. 24th*, 1874.
5. The Conversazione. *Held Dec. 1st*, 1874.
6. "The present Condition of Storm Warnings in the United Kingdom." R. H. Scott, M.A., F.R.S., Director of the Meteorological Office. *Read Dec. 15th*, 1874.
7. "Gautama Buddha; his Life and Teachings." T. W. Rhys Davids, late of the Ceylon Civil Service. *Read Jan. 5th*, 1875.
8. "Recent Developments of the Theory of Volcanic Phenomena." Professor A. H. Green, M.A. *Read Jan. 12th*, 1875.
9. "The Passage of Light through Optical Instruments." Walter Baily, M.A. *Read Jan. 19th*, 1875.
10. "Joan of Arc." J. C. Morison, M.A. *Read Feb. 2nd*, 1875.
11. "The Measurement of the Chemical Action of Sunlight." Professor T. E. Thorpe, Ph. D., F.R.S.E. *Read Feb. 9th*, 1875.
12. "Art and Literature in Egypt in the fourteenth century B.C." Rev. J. Estlin Carpenter, M.A. *Read Feb. 16th*, 1875.
13. "Soap Bubbles." Professor A. W. Rücker, M.A. *Read Mar. 2nd*, 1875.
14. "The Christian Antiquities of Ravenna." E. C. Clark, M.A., LL.M., Regius Professor of Civil Law, Cambridge. *Read Mar. 15th*, 1875.
15. "Coal and Coal Plants." Professor W. C. Williamson, F.R.S. *Read April 6th*, 1875.

Two short Courses of Lectures have been delivered by the Society's Curator, Mr. L. C. Miall, viz., six Lectures on "The Geology of the Neighbourhood of Leeds," in April and May, 1874, and two Lectures on "The Structure and Mode of Life of the Elephant," in February, 1875.

The Annual Conversazione was held on December 1st, and was well attended by the Members and Subscribers,

Wood engraving had been chosen as a subject for special illustration, and the kindness of many friends in Leeds and at a distance, rendered it possible to exhibit choice examples of the great masters in this art, Dürer, Wolgemuth, Burgmair, Holbein, and Bewick. So large and choice a collection of engravings by Bewick has never been assembled in Leeds. Besides many separate prints 42 volumes illustrated by this artist were shown. The modern practice of Wood Engraving was exemplified by drawings and photographs on wood, prepared blocks, engraved blocks, prints, engravers' tools, &c., lent by the proprietors of the *Graphic* newspaper, and the process of printing from wooden blocks was shown by Messrs. McCorquodale & Co. At the request of the council, Dr. Clifford Allbutt delivered a short address on the "History and Methods of Wood Engraving;" and at a later hour Prof. A. W. Rücker, M.A., of the Yorkshire College of Science, exhibited and described Mr. Crooke's "Experiments on Attraction and Repulsion by Radiation." A large collection of pictures and other works of art, of scientific curiosities and of novel industrial products, was distributed through the rooms.

It has become necessary to remind the Members and Subscribers that cards of invitation to the Conversazione, like admission tickets to the Society's Lectures, are not transferable, and are intended to admit only those whose names are written on the cards.

The Lecture Hall was cleaned and painted immediately before the opening of the session. At the same time the attention of the council was directed to the heating and ventilation of the room. Several experiments and alterations have been made with limited success. The

subject is still under consideration, and the council hope to be able materially to improve the atmosphere of the room.

During the last year an elementary Rock Collection, which has long been wanted to complete the geological department of the society's museum, has been formed and arranged. The rocks are divided into a local and a general series, and though time and additional space will be required to render the collection altogether adequate to the requirements of the student, it is already of educational value. A large proportion of the specimens have been collected within the year, and the council are indebted to Professor A. H. Green, M.A., of the Yorkshire College of Science, for important assistance in this work.

The general collection of Birds has been cleaned and rearranged. Many additional species have been named, chiefly by the Rev. Canon Tristram, whose kindness in undertaking work so difficult to any but a practised ornithologist the Council acknowledge. The descriptions of the various exotic species are scattered through innumerable works, many of them rare and costly, so that it has hitherto been impossible for provincial naturalists to name systematically a large and miscellaneous collection of foreign birds. The new descriptive catalogue of the birds in the British Museum, of which the first volume has lately been issued, will before many years have elapsed remove this difficulty. Throughout the collection—and the same remark applies to all departments of the museum which have been rearranged within the last three years—printed labels are substituted for the old manuscript labels.

The large and valuable collection of Mammalia is now undergoing revision, and the Primates, Cheiroptera,

Insectivora, and Rodentia have been cleaned and rearranged. The curator's assistant has arranged and partly renamed the Echinodermata, Polyzoa, Annelida, and Entozoa in the society's possession.

Another descriptive guide, illustrative of the collection of British Birds, has been issued during the last year. The sale of these publications, amounting to 803 copies for the year, gives the best proof of their usefulness. 43,901 persons have been admitted by payment to the museum during the year 1874-5. This is the largest number recorded in one year, except in 1872-3, when the receipts slightly exceeded the present amount.

Among the additions to the museum during the session now ended the following require special mention :—The society is indebted to the Earl of Enniskillen for a fine collection of fish remains from the mountain limestone of Armagh, and to Mr. John Harker of Richmond, for an important series of rare mountain limestone fossils, chiefly fish remains, from the neighbourhood of Richmond. The Raygill excavation, mentioned in the report of last year, has since yielded interesting fragments of *Hippopotamus, Elephas antiquus, Rhinoceros hemitæchus, Bos primigenius and Hyæna spelæa.* By the kindness of Mr. E. G. Spencer, of Lothersdale, these important relics have found a place in the society's museum. A collection of mammalian remains from the forest-bed of Cromer, which has hitherto been unrepresented in our palæontological series, has been contributed by Mr. R. H. Tiddeman, M.A., of the Geological Survey, whom we have also to thank for a collection of fossils from the Wealden of Hastings. We have to thank the Zoological Society for a fine specimen of the Tinamou

(*Tinamus Tao*, Tem.), the skeleton of which will shortly be added to the collection. This interesting form has long been a desideratum. The society has acquired, by purchase, a small but interesting collection of Roman antiquities found in the excavation for the North-Eastern Railway at York; a series of casts of the cranial cavities of Mammalia, issued by the Royal College of Surgeons; an example of the very curious pigeon, *Didunculus strigirostris*, from Samoa; and an adult of the *Apteryx australis*, from the Zoological Gardens.

The collections in nearly every department have outgrown the space at disposal. This is particularly the case with the Mammalia. It is impossible to display satisfactorily the specimens already acquired, and fresh additions can only be made at some disadvantage to the objects already placed. The Council have under consideration a plan for enlarging the Natural History Department by fitting up a gallery above the wall-cases in the large zoological room. Much additional accommodation would be gained thereby, without encroaching upon the free space of the room or interfering with the light.

In December last, a young female elephant, which had died in a travelling menagerie at Bradford, was purchased by the council for the purpose of dissection. It is not to be expected that the society's collection will be materially enriched from this source, but additional information will be obtained respecting the structure of an animal which, from its bulk and the supposed impossibility of preserving it from putrefaction, has never yet been examined with proper care. The dissection is still in progress, and has yielded several interesting results. The curator, Mr. L. C. Miall, has received

important assistance in this work from Mr. F. Greenwood, a member of the society and curator to the Leeds School of Medicine. To comparative anatomists the structure of this animal has always been an object of great interest, and has secured special study from John Hunter, Cuvier, Camper, and other eminent naturalists; but their investigations and dissections were partial, consequently your council were glad to afford Mr. Miall the opportunity of prosecuting the dissection and illustrating various peculiarities in its textures. This he has done with the utmost perseverance and with much credit to himself. Certain anatomical peculiarities which he has noted will be communicated through one of the scientific journals.

The Council are sure that all members of the society will share in their feeling of satisfaction at the honour recently conferred upon the society's curator, Mr. Miall, to whom the Geological Society of London has presented the balance of the Wollaston Fund, a grant made for the encouragement of research.

We record with great satisfaction the founding of an institution which promises to do much for scientific education in this town and district. The Yorkshire College of Science was opened in October last, and has actively prosecuted its work through the winter. Systematic instruction in mathematics, physics, chemistry, and geology, of a kind hitherto unattainable in Yorkshire, is now readily accessible to all. The consolidation and extension of the College of Science will promote in the surest and most rapid manner those studies which this society endeavours to cultivate. We may expect before long to include among our members a number of trained investigators;

the resources of the society, particularly the museum and library, will be more largely utilised; and scientific research, which so far as Leeds is concerned has long seemed to be on the verge of extinction, may be re-awakened. The present report shows that more direct benefits are already received by this society from the college staff. We have been favoured with three lectures from the professors, and the attractiveness of the conversazione was increased by their friendly assistance, while the geological collection has been enriched from the collections of the Professor of Geology.

Under the auspices of the Local Committee for University Extension four courses of lectures and classes have been conducted during the past winter by lecturers from the University of Cambridge. Astronomy, physical geography, English constitutional history, and political economy have been taught in this way. The council have endeavoured to promote the important educational objects of the University Extension Committee by affording the use of the lecture hall at a reduced charge.

Four of our honorary members have been removed by death during the last year. Sir William Fairbairn and Dr. R. E. Grant belonged to us as eminent men of science, who had on special occasions honoured the society by delivering addresses before it. Dr. P. O'Callaghan and Mr. W. Osburn were more closely connected with us as former officers and members of council. Mr. Osburn had served successively as member of council, honorary secretary, vice-president, and curator of antiquities for 20 years, when his removal from Leeds in 1843 compelled him to resign his membership. He was a laborious student of Egyptian antiquities. In 1828 he

published an elaborate account of the mummy and sarcophagus, still in the possession of the society. Dr. O'Callaghan joined the council in 1855, and was elected hon. secretary in 1857. He held that office until his departure from Leeds in 1864. The catalogues of donations to the museum, the notices of objects exhibited at the annual conversazione of the society, the lists of lectures and papers, all bear abundant evidence of Dr. O'Callaghan's untiring exertions for the benefit of this institution. The new interest awakened in the proceedings of the society by the lectures from men eminent in science and literature whom he induced to visit Leeds, led to a great increase in the number of members and subscribers, and ultimately to the enlargement of the building. When Dr. O'Callaghan first entered the society the impetus with which it had set out thirty-five years previously was nearly exhausted. Thanks to his enthusiasm and energy its original activity has been revived and extended, and fifty-five years after its inauguration the society is still flourishing and successfully accomplishing the purposes for which it was instituted—viz., the maintenance of a classified museum, and the diffusion of sound literature and scientific knowledge.

Summary of Meteorological Observations taken at the Philosophical Hall, Leeds, during the year 1874.

1874.	Mean Temperature.	Mean Height of Barometer.	Total Amount of Rain in Inches.
January	42·5 Fah.	29·771	1·544
February	39·4 ,,	29·815	1·199
March	44·9 ,,	29·962	1·667
April	51·1 ,,	29·685	1·334
May	50·1 ,,	29·832	0·950
June	58·9 ,,	29·947	0·504
July	65·1 ,,	29·795	2·544
August	60·1 ,,	29·681	1·794
September	57·4 ,,	29·675	1·869
October	50.1 ,,	29·624	2·168
November	42·4 ,,	29·779	2·671
December	32·8 ,,	29·630	2·639

The mean monthly temperature was 49·5°.

The mean monthly height of the barometer was 29·766 inches.

The total rainfall for the year was 20·883 inches.

The greatest degree of heat, as indicated by the thermometer in the sun, was 98° on July 19; the greatest in the shade was 90° on July 19; and minimum 11° on December 30.

The greatest barometric pressure was on March 6, being 30·697 inches, the temperature of the mercury being 55°; the least pressure was on November 29, being 28·430 inches, the temperature of the mercury being 45°.

The greatest fall of rain (during 24 hours) was on November 29, being 0·980 inches.

Latitude, 53° 48′ 20″ N.; longitude, 1° 33′ W. Height of the cistern of the barometer above the mean level of the sea, 137 feet; height of the rain-gauge above the street, 46 feet.

LEEDS PHILOSOPHICAL AND LITERARY SOCIETY.

STATEMENT OF RECEIPTS AND EXPENSES FOR THE YEAR 1874-5.

RECEIPTS.	£	s.	d.	£	s.	d.
To Bankers' Balance	6	0	7			
,, Curator's Ditto...	32	6	6			
				38	7	1
,, 82 New Proprietary Members, at 21*s.*	86	2	0			
,, 69 New Ordinary Members, at 21*s.*...	72	9	0			
,, 12 Old Ordinary Members, at 42*s.* ...	25	4	0			
,, 203 Old Annual Subscribers, at 21*s.*	213	3	0			
,, 27 New Annual Subscribers, at 21*s.*	28	7	0			
,, 162 Old Annual Subscribers, at 7*s.* 6*d.*	60	15	0			
,, 31 New Annual Subscribers, at 7*s.* 6*d.*	11	12	6			
,, Arrears	12	12	0			
				510	4	6
,, Rents of Cellars	50	0	0			
,, Rents of Lecture Room	189	9	0			
				239	9	0
,, Receipts for the Museum	182	18	5			
,, Receipts for the Conversazione ...	15	15	0			
				198	13	5
,, Donation from H. R. Marsden, Esq.	25	0	0			
,, Donation from T. Emsley, Esq. ...	10	0	0			
				35	0	0
,, Sale of Catalogues and Descriptive Guides	3	6	11			
,, Sundries	0	0	5			
,, Sale of Shares	30	0	0			
				33	7	4
				£1055	1	4

DISBURSEMENTS.	£	s.	d.	£	s.	d.
By Repairs	89	4	11			
,, Taxes and Rates	4	15	7			
,, Insurance	14	15	9			
,, Coals	22	13	3			
,, Gas	25	2	6			
				156	12	0
,, Salaries—Curator's	250	0	0			
,, Assistant Curator's ...	50	7	2			
,, Porter's	74	10	6			
				374	17	8
,, Collections—Geological	14	9	2			
,, Zoological	17	1	7			
,, Archæological	3	5	6			
,, Library	23	19	9			
				58	16	0
,, Postages	18	8	11			
,, Printing and Advertising	61	6	7			
,, Lectures	81	5	0			
,, Conversazione	59	5	5			
,, Commission to Collector (two years)	25	14	9			
,, Bankers' Commission	2	12	0			
,, Sundries	53	13	4			
				302	6	0
,, Balances—Bankers'	149	8	10			
,, Curator's	13	0	10			
				162	9	8
				£1055	1	4

Examined and found correct,

FRAS. M. LUPTON,
JOHN MARSHALL, } AUDITORS.

LIST OF DONATIONS AND ADDITIONS

TO THE

SOCIETY'S MUSEUM AND LIBRARY,

1874-5.

GEOLOGY AND MINERALOGY.

Clay Ironstone, from Coal Measures, with "cone-in-cone structure"	Mr. G. F. Naylor, Wakefield.
Baryta and Calcite, from veins in Raygill Quarry, Lothersdale	Mr. Walter Baily, M.A.
Paludina, from Wealden of Sandown Bay, Isle of Wight (6 examples).....	Rev. C. H. Middleton.
Polished Mountain Limestone Coral (Clisiophyllum), from Llandudno	Mr. H. Saville.
Specimen of Swedish Iron	Mr. Sydney Lupton, M.A.
Red Chalk from Speeton..... ..... Seven Specimens of Terebratula semi globosa, from Red Chalk, Speeton.....	Prof. A. H. Green, M.A.
Placoid teeth, from the Carboniferous Limestone of Armagh, viz.:— Psammodus porosus (4 specimens) Psammodus rugosus Cochliodus sp. Chomatodus cinctus (3 specimens) Psephodus magnus Streblodus obliquus (2 specimens) Streblodus Colei (2 specimens) Pœcilodus Jonesii (3 specimens) Helodus planus Helodus didymus (2 specimens) Petalodus Hastingiæ (2 specimens) Petalodus sagittatus (2 specimens) Copodus cornutus (2 specimens)	The Earl of Enniskillen, Florence Court, Enniskillen.

A Second Collection of Precious Stones, &c., viz.: — Turquoise, Tourmaline, Ruby, Porphyry, Garnet, Blue Agate, Malachite, Jade, Cat's-eye, Sapphire, Opal in matrix, three Pearls, Emerald	The late P. O'Callaghan, D.C.L., LL.D.
Fossils from the Mountain Limestone of Richmond, Yorkshire, viz.:— Pristodus falcatus (5 specimens) Cladodus (4 specimens) Petalodus Hastingiæ (4 specimens) Ctenopetalus serratus (5 specimens) Pleurodus Helodus didymus, and four other species of fishes Serpularia parallela Diastopora megastoma Monticulipora tumida Zaphrentis (?)	Mr. John Harker, Richmond.
"Cone-in-cone" Ironstone, Marcasite, Pyrite, Towanite, Zinc Blende, and Quartz, from Harlech	Mr. G. F. Naylor, Wakefield.
Rock Specimens, viz.:— Liver Rock, Craigleith Porphyritic Dolerite Syenite, Ennerdale Do. Vale of St. John Amygdaloid and Fossil Stem from Carboniferous Volcanic Ash	Prof. A. H. Green, M.A.
Antholithes Pitcairniæ, from Beeston Band Ironstone	Mr. James Malt.
Specimens of Volcanic Ash (Auvergne), Iron Ores (Elba), Gneiss, &c.	Rev. Chas. Norcliffe, Petergate, York.
Elephant Remains and Antlers of Cervidæ from the Forest Bed, Cromer	Mr. R. H. Tiddeman, M.A., H. M. Geological Survey.
Vertebræ and Rib of Iguanodon, Teeth and Bones of Crocodilus, Teeth and Scales of Lepidotus from the Hastings Sand, Hastings	Mr. R. H. Tiddeman, M.A., H. M. Geological Survey.
Molar of Elephas antiquus (narrow-plaited variety), two Molars of Rhinoceros hemitœchus, Lower Incisor of Hippopotamus major, two Molars of Bos primigenius, three Molars of Hyæna spelæa, from fissure filled with Glacial Drift, Raygill, Lothersdale, near Skipton	Mr. E. G. Spencer, The Willows, Lothersdale.

Rock Specimens, viz.:— Six Specimens illustrating the metamorphism of Skiddaw Seven Specimens from Castlerigg Fell, Keswick, viz.:— Coarse Volcanic Ash. Volcanic Ash, highly altered and semi-crystalline. Interstratification of Fine and Coarse Volcanic Ash. Vesicular and Slaggy (?) Lava. Vesicular Lava (top of flow.) Do. (centre of flow.) Close Trap (middle of flow) ..... Dolerite, from Castle Hill, Keswick..... Two Specimens of Gypsum from Fairburn	Prof. A. H. Green, M.A.
Septarian Ironstone Nodule from Osmondthorpe	Mr. J. Eccles, Temple Newsam.
Specimens of Ammonites, Kimmeridge Clay " Coralline Oolite Modiola, Gt. Oolite Pleurotomaria, Oolite Iron Ore, California Apatite, Scotland	Mr. Sydney Lupton, M.A.

ZOOLOGY AND BOTANY.

Sword of Sword-fish	Mr. James Lee.
Live specimen of Mygale, from logwood, St. Domingo	Mr. Thomas Crossley.
Live Snake, from logwood, St. Domingo.	Mr. Thomas Crossley.
A collection of West Indian Fruits, Wax Models, Lichens, and Insects	Rev. J. Bell.
Amphisbæna, Ahætulla, Anaconda, and other Reptilia (17 jars)	Mr. S. L. Nussey.
Magpie and live Hedge-hog.....	Mr. T. W. Stansfeld.
Eggs of the Chamæleon	Mr. Rudolph Gerheusser.
Stoat and Weasels.....	Mr. T. W. Stansfeld.
Didunculus strigirostris, Samoa	Purchased.
Specimen of horny growth from the knee of a cow	Dr. Goldie.

Apteryx Australis	Purchased.
Tinamou (Tinamus Tao)	Zoological Society.
Cuckoo Goatsucker	Mr. T. W. Stansfeld.
Specimens of Teius, Amphisbæna, and three other snakes	Mrs. Foster, Manchester.

ARCHÆOLOGY.

Fragment of mortarium, Heddington	Mr. Sydney Lupton, M.A.
Three teeth of Aetobatis found in a Mummy case	The late P. O'Callaghan, LL.D., D.C.L.
Further collection of Flint Implements from Adel	Mr. Twigg, Reformatory, Adel.
Two antique Carbines	Mr. T. R. Clapham, Austwick Hall, Clapham.
Cinerary Urn; Bronze Ampulla; fragment of mortarium (Samian Ware); handle of mortarium; fragments of vessel with York frill; fragments of pottery, with Caistor glaze; three mediæval embossed tiles; collection of bone pins	Purchased.

TECHNOLOGY.

Specimen of artificial stone, Belgium Specimens of Low Moor and Swedish Iron Shaving of an Armour-plate of H.M.S. Valiant	Mr. Sydney Lupton, M.A.
Crystallised Lactose or Milk Sugar	Messrs. Harvey & Reynolds.
Specimens of Cudbear and Orchil	Mr. S. L. Nussey.

PUBLICATIONS.

Weather Charts of Meteorological Office	Mr. E. Filliter.
Reports of the Geological Survey of Missouri, 1855-71 Preliminary Report on Iron Ores and Coalfields, with Atlas, 1872	Mr. R. Pumpelly, State Geologist of Missouri.
Works of Count Rumford, Vols. II., III. Proceedings of American Academy of Arts and Sciences, part of Vol. VIII., Vol. IX.	American Academy of Arts and Sciences.
Second Annual Report of the Zoological Society of Philadelphia	The Society.
Synopsis of Flora of Colorado Bulletin of U.S. Geological Survey of the Territories, No. I.	Dr. F. V. Hayden.

Brief Sketches of Booterstown and Donnybrook, Parts I. and II.	Rev. B. H. Blacker, Blackrock, Dublin.
Reliquiæ Aquitanicæ, Part XV.	Executors of the late Henry Christy.
Catalogue of Birds, Vol. I. Guide to 1st and 2nd Egyptian Rooms " Egyptian Galleries (Vestibule) " Græco-Roman Sculptures " Exhibition Rooms of Natural History and Antiquities Hand-list of Seals, &c. Roman Medallions.....	Trustees of the British Museum.
Statistics of Tasmania for 1873	Mr. W. B. Gellibrand, Cleveland, Tasmania.
Report of Halifax Literary and Philosophical Society for 1874.....	The Society.
Index to Transactions, Proceedings, and Journal of Geological Society, 2nd Ed.	Purchased.
Report of President and Treasurer of Harvard College for 1872-3 Report of Board of Overseers of do. for 1872-2 Harvard University Catalogue, 1873-4 ...	Board of Overseers of Harvard College, Cambridge, U.S.
Report of Board of Public Education of 1st School District of Pennsylvania for 1873	Board of Education of Pennsylvania.
Report of Board of State Charities of Massachusetts for 1872-3	Board of State Charities of Massachusetts.
Report of the Board of Agriculture of Massachusetts for 1873-4	Board of Agriculture of Massachusetts.
Report of the Board of Education of Massachusetts for 1872-3	Board of Education of Massachusetts.
Temperature Chart of the United States.	Smithsonian Institution.
The Cape Catalogue of 1159 Stars.....	Lords of the Admiralty.
7th Quarterly Report of the Sub-Wealden Exploration	Mr. E. H. Willett, Brighton.
Hand-book to Leicester Town Museum (Natural History and Geology) Presidents' Addresses and Reports of Leicester Literary and Philosophical Society, 1867-72.....	Leicester Literary and Philosophical Society.
Catalogue of the Library of the Manchester Geological Society, 1875.....	The Society.

Publications of the Royal University of Norway (17 pamphlets)	The University.
On the "Showing-off" of the Australian Bustard (pamphlet) On some points in the Anatomy of the Columbæ On certain muscles of the thigh of birds and their value in classification (2 parts)	The Author, Prof. A. H. Garrod, M.A.
Memoirs illustrating the following maps:—88 N.E., 90 N.E., 91 N.W., 93 N.W., 98 N.E., and 98 S.E.	The Director General of H.M. Geol. Survey.
Chronological and Descriptive Indices of Patents from Sept. 8, 1872, to Aug. 19, 1874 Abridgments of Specifications of Patents published in 1873-4 (14 parts)	The Commissioner of Patents.
Various pamphlets, &c., on subjects in Geology, Zoology, Archæology, &c.	Mr. A. W. Morant, Borough Engineer.
Fifteen Pamphlets on various branches of Natural History	The Author, W. Saville Kent.
Report of the U.S. Commissioner of Agriculture for 1873	U.S. Commissioner of Agriculture.
Report of U.S. Geological and Geographical Survey of Colorado for 1873	Dr. F. V. Hayden, U.S. Geologist, Washington.
MS. notes or illustrations of Insects, part containing Diptera	Mr. Townend Glover, Washington.
Various Pamphlets and Reports	Mr. T. G. Denny.
Reports of U.S. Dept. of Agriculture, 1874	The Department.
Report of Geological Survey of Missouri (with Atlas), 1873-4	Mr. G. C. Broadhead, State Geologist, St. Louis.
Report U.S. Geological Survey of Territories, Vol. VI. Lists of Elevations, 3rd Ed. Catalogue of Publications	Dr. F. V. Hayden, U.S. Geologist, Washington.
Phillips' Geology of Yorkshire, pt. I., 3rd Ed.	Purchased.

PERIODICALS.

WEEKLY.

Nature	Purchased.
Leader (Australian Newspaper)	Publishers.
Australasian	Publishers.

MONTHLY.

American Journal of Science and Arts Annals and Magazine of Natural History Geological Magazine.....	Purchased.
Illustrated Australian News	Publishers of the "Leader."
Monthly Notices of the Proceedings of the Royal Society of Tasmania (yearly) ...	Royal Society of Tasmania.
Journal of the Chemical Society.....	Chemical Society.
Bulletin of the Essex Institute.....	Essex Institute, U.S.A.
Monthly Notices of the Royal Astronomical Society	Royal Astronomical Society.

QUARTERLY.

Quarterly Journal of Science Quarterly Journal of Microscopical Science	Purchased.
Quarterly Journal of Geological Society	Geological Society.
Quarterly Returns of Marriages, Births, and Deaths.....	Registrar General.
Journal of the Royal Historical and Archæological Association of Ireland.....	Royal Historical and Archæological Association of Ireland.
Journal of the Anthropological Institute..	Anthropological Institute.
Proceedings of the Geologists' Association.	Geologists' Association.
Zeitschrift für Wissenschaftliche Zoologie (4 pts. a year).....	Purchased.

ANNUALLY.

Philosophical Transactions	Purchased.
Mineral Statistics of the United Kingdom.	Director General of the Geological Survey.
Communications to the Yorkshire Philosophical Society and Annual Report ...	Yorkshire Philosophical Society.
Proceedings of the Glasgow Philosophical Society	Glasgow Philosophical Society.
Mittheilungen der kais. und königl. geographischen Gesellschaft in Wien	Royal Imperial Geographical Society of Vienna.
Proceedings of the Academy of Natural Sciences of Philadelphia (3 pts. a year)	Academy of Natural Sciences of Philadelphia.
Radcliffe Astronomical and Meteorological Observations	Radcliffe Trustees.
Proceedings of the Royal Society of Edinburgh Transactions of do	Royal Society of Edinburgh.

Publications of the Ray Society	Purchased.
Abstract of the Proceedings of the Liverpool Geological Society	Liverpool Geological Society.
Transactions of the Edinburgh Geological Society	Edinburgh Geological Society.
Kongliga Svenska Vetenskaps Akademiens Handlingar Do. do. Lefnadsteckningar Ofversigt af Kongliga Vetenskaps Akademiens Förhandlingar	Royal Swedish Academy of Sciences.
Natural History Transactions of Northumberland and Durham.....	Natural History Society of Northumberland, Durham, and Newcastle-upon-Tyne, and Tyneside Naturalists' Field Club.
Proceedings of the Berwickshire Naturalists' Club.	Berwickshire Naturalists' Club.
Proceedings of the Liverpool Literary and Philosophical Society	Liverpool Literary and Philosophical Society.
Proceedings of the Boston Society of Natural History Memoirs of do.	Boston Society of Natural History.
Transactions of the Historic Society of Lancashire and Cheshire	Historic Society of Lancashire and Cheshire.
Memoirs of the Royal Astronomical Society	Royal Astronomical Society.
Greenwich Observations	Lords of the Admiralty.
Transactions and Proceedings of the New Zealand Institute	New Zealand Institute.
Proceedings of the Warwickshire Naturalists' and Archæologists' Field Club	Warwickshire Naturalists' and Archæologists' Field Club.
Annual Report and Papers of the Associated Architectural Societies	Associated Architectural Societies.
Journal and Annual Report of the Royal Institution of Cornwall.....	Royal Institution of Cornwall.
British Association Report..... ..	British Association.
Annual Report of the Royal Cornwall Polytechnic Society	Royal Cornwall Polytechnic Society.
Annual Report of the Smithsonian Institution	Smithsonian Institution.
Annual Report of the Warwickshire Natural History and Archæological Society	Warwickshire Natural History and Archæological Society.

Annual Report of the U.S. Patent Office	United States Patent Office.
Annual Report of the Hull Literary and Philosophical Society	Hull Literary and Philosophical Society
Annual Report of the Belfast Naturalists' Field Club	Belfast Naturalists' Field Club
Annual Report of the Liverpool Free Public Library, Museum, and Schools .	Free Library, Liverpool.
Annual Report of the Geologists' Association	Geologists' Association.
Annual Report on the Sanitary Condition of Leeds	Medical Officer of Health for Leeds.
Annual Report of the Minnesota Historical Society	Minnesota Historical Society
Annual Report of the Museum of Comparative Zoology at Harvard College, U.S.A.	Museum of Harvard College, Cambridge, Mass.
Annual Report of the Birkenhead Literary and Scientific Society	Birkenhead Literary and Scientific Society.
Annual Report of the Winchester College Natural History Society	Winchester College Natural History Society.

Canadian Journal (3 or 4 pts. a year).....	Canadian Institute, Toronto.
Yorkshire Archæological and Topographical Journal	Yorkshire Archæological and Topographical Association
Proceedings of the Royal Society	Royal Society.
Smithsonian Miscellaneous Collections ... " Contributions to Knowledge	Smithsonian Institution.
Memoirs of the Manchester Literary and Philosophical Society ..... Proceedings do. (about fortnightly, Oct. to April)	Manchester Literary and Philosophical Society.
Journal of the Royal Dublin Society (about once a year)	Royal Dublin Society.
Proceedings of the Royal Institution (2 pts. a year).....	Royal Institution of Great Britain and Ireland.
Proceedings of the Zoological Society (3 pts. a year—May, Oct., March)	Zoological Society.
Edinburgh Astronomical Observations ...	Royal Observatory, Edinburgh.

Transactions of the American Philosophical Society ..... Proceedings do. (several pts. a year)	American Philosophical Society.
Abridgments of Specifications of Patents, with Indices	Commissioner of Patents.
Transactions of the Academy of Sciences of St. Louis	The Academy of Sciences of St. Louis, U.S.
Oversigt over det Kongelige Danske Videnskabernes Selskabs Forhandlinger	Royal Danish Society of Sciences.
Proceedings of the Royal Irish Academy	Royal Irish Academy.
Journal of the Royal Geological Society of Ireland	Royal Geological Society of Ireland.
Transactions of the Manchester Geological Society	Manchester Geological Society.

LIST OF OFFICERS AND COUNCIL,

1875-6.

OFFICERS.

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Vice-Presidents	J. D. HEATON, M.D., F.R.C.P. Rev. J. H. McCHEANE, M.A.
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Honorary Librarian	J. D. HEATON, M.D., F.R.C.P.

The above officers, with the following gentlemen, form the

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F. M. LUPTON, M.A.
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JOHN RALPH.
T. W. STANSFELD.
W. SYKES WARD, F.C.S.

General Curator and Assistant Secretary	Louis C. Miall, F.G.S.
Curator's Assistant	C. J. Clarke.

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1874-5.

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* *Members deceased, whose shares have not been transferred.*

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EXEMPT FROM ANNUAL SUBSCRIPTIONS.

2	Aldam, Wm., M.A.	Frickley Hall, Doncaster.
3	Armitage, Wm. James	Southgate, London, N.
4	Arthington, Robert	73, Hunslet Road.
1	Atkinson, John William	13, Woodhouse Square.
5	Baines, Edward	St. Ann's Hill, Burley, near Leeds.
6	Barran, John	Chapel-Allerton Hall.
20	Battye, James C.	Spring Field, Yeadon.
18	Bilbrough, Alfred	15, Beech Grove Terrace.
8	Binks, Benjamin, Jun.	York Place.
9	Broadhead, Henry	Chapel-Allerton.
10, 11	Brown, James (2 shares)	Rossington, Doncaster.
31, 62	Brown, Samuel James (2 shares)	Loftus Hill, near Knaresborough.
13, 14	Calverley, Edmund (2 shares).	Oulton Hall.
15	Charlesworth, C. H.	Settle.
16	Chorley, Henry	8, Park Square.
17	Clapham, Samuel	19, Cookridge Street.
19	Coghlan, William	Oak Villa, Grosvenor Road.
21	Cudworth, John W.	52, Mount Preston.
7	Darwin, Francis, M.A.	Creskeld Hall, Otley.
22	Denison, William Beckett, M.A.	Meanwood Park.
28*	Dibb, Thomas Townend	
25	Eddison, John Edwin, M.D.	29, Park Square.
26	Ellershaw, John	Oakfield, Kirkstall.

27	Ellershaw, Walter . .	Hull.
28	Empson, Christopher .	Bramhope Hall.
29	Ford, Robert Lawson .	Adel Grange.
46	George, Thomas Willington	Gledhow Grove.
33	Goodman, Benjamin .	Gledhow House.
34, 35	Gott, Rev. John, D.D. (2 shares) . . .	Woodsley House.
36-8	Gott, William Ewart (3 shares) . . .	Armley House.
61	Greenhow, Thomas Michael, M.D. . . .	Newton Hall.
39	Harding, T. R. . .	St. Ann's Tower, Headingley.
40	Heaps, John William .	Terrace House, Chapeltown Road.
41	Heaps, Charles Denison .	Woodhouse Lodge, Woodhouse Lane.
42	Heaton, John Deakin, M.D., F.R.C.P. . .	Claremont, Leeds.
44	Hirst, Joseph . . .	Wharfedale Lawn, Wetherby.
45	Holt, Joseph . . .	Wedderburn House, Harrogate.
30	Horsfall, John, M.A., F.R.C.S. . . .	31, Albion Street.
24	Howgate, William . .	Park Row.
47	Ingham, Constantine .	Clarendon Place.
48	Ingham, William . .	Belmont, Chorley Lane.
49	Jowitt, John . . .	Harehills Grove, Potternewton near Leeds.
50	Joy, William Glover .	Moorfields, Headingley.
51	Kinnear, Thomas John, M.A.	Horsforth Hall.
52	Latimer, John . .	St. Mark's Villa, Woodhouse Lane.
55	Luccock, John Darnton .	54, North Street.
57	Lupton, Francis . .	Beechwood, Roundhay.
56	Lupton, Sydney . .	The Harehills, Roundhay Road.
58	Makins, Charles . .	17, Craven Hill, Regent's Park, London, N.W.
60	Marshall, Rev. Edmond Henry . . .	Launceston, Cornwall.

63	Marshall, Henry Cowper	Weetwood Hall.
59	Marshall, Arthur, F.G.S.	Headingley House.
64, 65*	Marshall, J. G., F.G S. (2 shares). . . .	
67	Marshall, Victor Alexander Ernest, B.A. . .	Headingley House.
66	Marshall, R. D. . .	Cookridge Hall.
68	Nunneley, J. A., M.B. .	22, Park Place.
69	Rhodes, John . . .	Potternewton House.
70	Shepherd, John . .	Beech Grove House, Tadcaster.
77*	Smith, John Metcalfe (Trustees of) . .	
32	Smith, Henry Stooks .	Headingley.
71	Tatham, George . .	Springfield Mount.
72	Teale, Thomas Greenwood	Bentley House, Meanwood.
73	Teale, Mrs. . . .	St. James' Lodge.
43	Tennant, Robert, M.P. .	Scarcroft Lodge, Shadwell.
74	Tottie, John William .	Coniston Hall, Bell Busk, near Skipton.
54	Waite, James Butler .	Belvidere House, New Leeds.
75	Walker, Edward . .	15, Springfield Mount.
76	Ward, William Sykes, F.C.S. . . .	Denison Hall, Hanover Square.
53	Whiteley, William . .	Butt's Cottage, Armley.
78*	Wilson, Richard Bassett (Trustees of) . .	
12	Wilson, Rev. Benjamin .	Bank House, Mirfield.

NEW PROPRIETARY MEMBERS,

WITH AN ANNUAL SUBSCRIPTION OF ONE GUINEA.

1	Atkinson, Daniel Hopkin	16, Brunswick Place.
32	Atkinson, Edward, F.L.S., F.Z.S.	2, Albion Place.
116	Baines, Frederick . .	Weetwood Lodge.
2	Balme, E. B. Wheatley .	Cote Wall, Mirfield.
95-7 * 99, 100	Beckett, William, Trustees of, (5 shares).	

15	Bilbrough, Joseph Brooks	15, Beech Grove Terrace.
3	Birchall, Edward . .	Inglemoor House, Moorland Road.
4	Boothroyd, W. . .	Grove Mill, Headingley.
88	Boswell, J. J. . . .	Althorp Villa, Spencer Place, New Leeds.
33-4, 84	Brown, S. J. (3 shares) (P)	Loftus Hill, near Knaresborough.
5-6	Brown, William (2 shares)	Bardon Grange, Weetwood.
7	Buckton, George . .	Roundhay.
89	Buckton, Joshua . .	Broomhill, Moor-Allerton.
113	Burkill, Isaac Henry .	Chapeltown.
90	Butler, J. O. . .	The Abbey House, Kirkstall.
8	Chadwick, Charles, M.D., D.C.L., F.R.C.P. .	
9	Chadwick, William .	Arksey, Doncaster.
10	Cliff, Joseph . . .	Wortley.
14	Conyers, W. H. . .	Ilkley.
12, 13	*Cooper, W. J. (2 shares).	
98	Craven, Joseph . .	Clifton House, Beeston Hill.
77	Crofts, John . . .	Adel.
17	Curwood, Capel Augustus	Cliff House.
44, 45	Darwin, Francis (2 shares)	Creskeld Hall, Otley.
18	*Donisthorpe, G. E.	
19	Fairbairn, Sir Andrew, M.A.	Goldsborough Hall, Knaresborough.
20	Farrer, James . .	Ingleborough House, Clapham, near Lancaster.
105	Ferguson, William . .	Ridge House, Woodhouse Lane.
21	Filliter, Edward, M. Inst. C.E., F.G.S. . .	West Mount, Clarendon Road.
87	Gott, Rev. John, D.D. (P)	Woodsley House.
101-110, 114-15	Gott, Wm Ewart (P) (12 shares).....	Armley House
22	Hall, Thomas . . .	Heath Cottage, Moor-Allerton.
23	Hargrave, James . .	Willaston House, Harrogate.
	*Hargreaves, S. B.	
16	Harvey, William . .	Bellevue Terrace.
24	Henderson, Rev. W. G., D.C.L. . . .	Grammar School.
26	Hey, Samuel, F.R.C.S.	1, Albion Place.

31*	Hey, William, F.R.C.S. .	
104	Holroyd, James . . .	Gledhow.
117	Howarth, Rev. William Lee	Elmwood House.
36	Hudson, Henry . .	Oakwood, Roundhay.
37	Hudson, Robert John .	Moorville, Burley-in-Wharfedale.
52	Ingham, Charles Alfred .	Belmont, Chorley Lane.
38	Ingham, Henry Constantine . . .	23, Lyddon Terrace.
39	Jowitt, Robert Benson .	Elmhurst, Potternewton.
40	Joy, Walker . . .	3½, Queen Square.
41	Kennedy, Thomas Stuart	Meanwood.
43	Kitson, James . .	Elmete Hall, Roundhay.
46	Kitson, J. Hawthorne .	Hyde Terrace.
47	Kitson, James, Jun. .	Spring Bank, Headingley.
48	Kitson, Frederick William	Burley, near Leeds.
49	Latchmore, Edward .	4, Ridge Mount, Cliff Road.
50	Leather, J. T. . .	Leventhorpe Hall.
91*	Ludolf, Henry . .	
53	Lupton, Arthur . .	Headingley.
54	Lupton, Joseph . .	The Elms, Chapel-Allerton.
55	Lupton, John . .	Moorlands, Headingley.
56	Lupton, Darnton . .	The Harehills, Roundhay Road.
57	Lupton, Francis Martineau, M.A. . . .	Wellington Street.
58	March, Joseph Ogden .	Beech Grove House, Woodhouse Lane.
94	Malcolm, John Cooper ..	New Leeds.
59	Margerison, J. L. . .	4, Porchester Gate, Bayswater Road, London
25	Marsden, H. R. . . .	Avenue House, Woodhouse Lane,
60	Marshall, Thomas, M.A.	Highfield, Chapel-Allerton.
61	Marshall, John, M.A. .	Headingley Lodge.
62	Marshall, Stephen Albert	Weetwood.
27	Maude, Edmund . .	Middleton Lodge, Beeston.
63	Meggeson, George . .	6, Cromer Terrace.
29	Milner, Henry B. W. .	Kirkstall Grange.
64	Nickols, Richard . .	West Derby, Liverpool.

55, 56	Nicholson, Albert H. (2 shares) . . .	46, Finsbury Circus, London, E.C.
67	Nunneley, A. G. . .	9, Beech Grove Terrace.
68	Oxley, Henry . . .	Weetwood.
28	Passavant, P. W. . .	De la Haye House, Chapeltown Rd.
11	Price, William Nicholson	7, East Parade.
30	Prichard, W. . . .	Bishopgate Street.
93	Ralph, John . . .	8, Brunswick Place.
69	Reynolds, Richard, F.C.S.	Cliff Lodge, Hyde Park.
112	Sagar-Musgrave, J.M. .	Red Hall, Shadwell.
92	Scattergood, Thomas .	41, Park Square.
118	Schofield, J. C. . .	Pendleton House, Spencer Place, New Leeds.
	Schunck, Edward . . .	Adel.
51, 121	Stansfeld, T. W. (2 shares)	Weetwood Grove.
70	Stewart, G. M. . .	13, Queen's Square.
71*	Taylor, George . .	Buckingham House, Headingley.
72*	Taylor, Samuel.	
73	Teale, T. Pridgin, M.A., F.R.C.S. . . .	North Grange, Headingley.
74	Teasdale, Washington .	Rosehurst, Headingley.
75	Tennant, Robert, M.P. (P)	Scarcroft Lodge, Shadwell.
76	Tennant, Thomas . .	21, Blenheim Terrace.
78	Tetley, F. W. . .	Fox Hill, Weetwood.
79	Turner, Richard Bickerton	Bank of England, South Parade.
80	Wailes, William . .	Harrogate.
111	Watson, William . .	Elmwood, Harrogate.
81, 82*	Whitaker, John (2 shares)	
42	Whiting, John . .	Regent Villas, Headingley.
83	Wicksteed, Joseph Hartley	3, Eldon Terrace, Woodhouse Lane.
85	Wilson, John . . .	Seacroft Hall.
86	Wilson, Thomas, M.A. .	3, Hillary Place.
35	Wood, Richard . .	Newton Villa, Potternewton.

ORDINARY MEMBERS.

WITH AN ANNUAL SUBSCRIPTION OF TWO GUINEAS.

Armistead, Joseph John . .	Chapeltown.
Atkinson, J. H.	14, East Parade.

Buckton, Joseph	Moorland Terrace.
Bulmer, John	4, Winfield Mount, Potternewton Lane.
Cadman, William . . .	Roundhay.
Garlick, William . . .	6, Hyde Terrace.
Hewitt, E. W.	Harrogate.
Ikin, Joshua Ingham, F.R.C.S. .	19, Park Place.
Martin, Samuel Dickinson . .	Beech Grove, Harrogate.
Ramskill, Josiah, M.R.C.S. .	13, Meadow Lane.
Stratten, Rev. J. R. . . .	Park Square.
Sykes, Henry Marshall . .	Roundhay.

NEW ORDINARY MEMBERS.

WITH AN ANNUAL SUBSCRIPTION OF ONE GUINEA.

Allbutt, T. Clifford, M.A., M.D., F.S.A., F.L.S. . . .	Lyddon House, Virginia Road.
Baily, Walter, M.A. . . .	24, Hyde Terrace.
Baines, Edward Manwaring .	6, Ashwood Terrace, Headingley Hill.
Barr, Frederick Horatio . .	Mount View, Headingley Lane.
Barwick, J. M.	Glen View, Shipley.
Benson. John	19, Albion Street.
Best, William	18, Lyddon Terrace.
Bolland, W. T.	Hunslet Lane.
Booth, Joseph	Grosvenor Road, Headingley Lane.
*Botterill, John	
Bousfield, Charles Edward .	St. Mary's Mount.
Briggs, Riley	Springfield Mount.
Carpenter, Rev. J. Estlin, M.A. .	
Carter, Robert Meek, M.P. . .	Woodhouse Lane.
Corson, George	Far Headingley.
Dawson, Edwin	17, Blenheim Terrace.
Denny, T. G.	46, Burley Street.
Dixon, J. W.	13, Vernon Road.
Downs, T. W. A.	12, Blenheim Square.
Eddison, Frederick . . .	The Manor, Adel.
Eddison, Robert William . .	Headingley.

Firth, William	Burley Wood House.
Ford, J. Rawlinson	Adel Grange.
Ford, T. B. P.	Ilkley.
Gascoigne, F. C. Trench	Parlington Park.
*Greenwood, Thomas.	
Hargrave, John	St. Ann's Lodge, Burley, near Leeds.
Hepper, John	Clareville, Headingley.
Holt, Henry Percy	Cavendish Road.
Holt, Joseph (P)	Wedderburn House, Harrogate.
Horsman, Thomas, B.A.	3, High Royd, Belle Vue Road.
Illingworth, William	Headingley Cliff.
Ingham, Tom	Belmont, Chorley Lane.
*Irwin, Edward	
Irwell, Julius	Highfield House, Headingley.
Jackson, Rev. Edward, M.A.	9, Brunswick Place, North Street.
*Jackson, William S.	
Kempe, Arthur	29, Brunswick Terrace.
Kemplay, Miss	St. John's Place.
Lambert, Joseph	Rose Court, Headingley Lane.
Lawson, Thomas.	Potternewton.
Lawson, John	Beech Grove Hall.
Leather, J. W.	
Ledgard, William	Eller Close, Roundhay.
Lupton, Joseph	Armley.
Manning, H. J.	Manning, Wardle, & Co., Hunslet.
McCheane, Rev. J. H., M. A.	Trinity Parsonage, Hyde Terrace.
March, George	Oaklands, Scarcroft.
Middleton, John William	Mount Terrace, Potternewton.
Morley, Herbert Ogle	20, Victoria Terrace.
Myers, William Beswick	Gristhorpe, near Filey.
Myers, W. C.	Grove House, Roundhay.
Nelson, Henry	St. John's Cottage, St. John's Road.
Nunneley, Thomas	9, Beech Grove Terrace.
Nussey, George Henry.	St. Ann's Lane, Burley, near Leeds.
Nussey, Obadiah	Morley House, Headingley
Nussey, Thomas	Virginia House, Headingley-Hill.
Nussey, Samuel Leathley	Potternewton Hall.
Nussey, Peter	Spring Ville, Shaw Lane, Headingley

*Payne, R. E.	
Peel, Mrs.	Ackworth Park, Pontefract.
Ramsbotham, S. H., M.D.	16, Park Place.
Raynar, John	37, Lyddon Terrace.
Read, Miss	Chapel-Allerton
*Riley, Thomas.	
Robinson, Richard	Ousthorpe Villa, Clarendon Road.
Robinson, R. H.	Kirkstall Hall.
Sharpe, Miss	21, Victoria Place, Camp Road.
*Simpson, R. W.	
Smith, John Edward	12 and 13, Clements Inn, Strand, London.
Smith, William Farrar	Hope Villa, Woodhouse Lane.
Somers, Francis	Fountain Terrace.
Stables, James	Horsforth.
Stead, G. A.	Ashwood Villas, Headingley.
*Talbot, George.	
Temple, Rev. Henry, M.A.	St. John's Vicarage, Woodhouse Lane.
*Tennant, Joseph Mason.	
Titley, Anthony	Manor House, Victoria Grove, Headingley.
Titley, T. A.	Gledhow.
Tottie, J. W. (P)	Coniston Hall, Bell Busk.
Townsley, Richard	6, Springfield Mount.
*Wade, John.	
Walker, H. B.	Headingley Hill.
Whiteley, Thomas	Blenheim Square.
Willson, J. J.	Newton Grove.
Young, John	Moor Hill Farm, Headingley.

ANNUAL SUBSCRIBERS OF ONE GUINEA.

Ambler, T.	9, Park Place.
Appleton, Henry	Adel Lodge.
Armistead, Edwin	Albion Street.
Asquith, John Robert	Bond Place.
Atkinson, G. P.	Pontefract.
Atkinson, Miss	Clarendon Road.

Atkinson, Law	Clarendon Road.
Baines, J. W.	
Barran, Charles	Chapel-Allerton Hall.
Barran, John, Jun.	St. Mary's Mount, Newton Hill.
Bartholomew, W. H., C.E.	Albion Villas, New Leeds.
Battye, R. C.	Newton Grove.
Bedford, James	Woodhouse Cliff.
Beverley, Mrs.	Grosvenor Terrace, Headingley.
Beverley, Robert	Woodsley Terrace.
Beverley, W. A.	17, St. John's Terrace.
Bickerdike, Rev. John, M.A.	St. Mary's Vicarage, Beckett Street, Burmantofts.
Birchall, Oswald	Kirkstall Grove.
Braithwaite, James, M.D.	Clarendon Road.
Braithwaite, Richard Hale	Do.
Brigg, Rev. W. H.	Bolton, near Bradford.
Browne, J. C.	48, Briggate.
Bruce, William	Moorland Terrace.
Buckley, J. C.	10, Blenheim Terrace.
Buckton, Richard	Wheatfield Lodge, Headingley.
Bulmer, Charles	Blenheim Lodge.
Bulmer, Clifford Charles	do.
Burton, F. H.	Newtown Works.
Burton, J. W.	27, Springfield Place.
Butler, Edmund	Riseholme, Horsforth.
Byles, Rev. A. Holden, B.A.	7, Richmond Road, Headingley.
Calvert, John P.	6, Springfield Place.
Campbell, Archibald	23, Hyde Terrace.
Chadwick, W.	Merton Villa, Cardigan Road.
Chatwin, E. W.	1, Willow Grove Road.
Cheetham, W.	Woodbottom Cottage, Horsforth.
Clare, W., M.D.	Park Square.
Clark, Miss	S. L. Nussey, Esq., Potternewton Hall.
Clay, J. W.	16, Warwick Place.
Coates, James Irwin, F.R.A.S.	Southend, Headingley.
Conyers, Joseph	Castle Grove, Headingley.
Cooke, William	Moorfield House, Moor-Allerton.

Cooper, G. I.	Woodhouse Chemical Works.
Craig, Robert	98, Briggate.
Crampton, W. T.	Woodland View, Chapeltown.
Crawford, James	Chapel-Allerton.
Crawford, J. W.	Newton Lane.
Crosley, William	33, Mount Preston.
Croysdale, John	4, Beech Grove Terrace.
Cuthbert, John	163, Woodhouse Lane.
Daniel, Mrs.	37, Camp Road,
Davis, Edward	Milton Lodge, Far Headingley.
Dawson, William	Larchfield Mills, Hunslet Lane.
Dixon, Henry	6, De Grey Road.
Dolan, John Cass	North Hill Road, Headingley.
Douglas, Dr.	7, South Parade.
Douglas, John	Beech Grove, Oulton.
Dufton, Arthur Wellesley	74, Springfield Place.
Eagland, W. H.	Lyddon Terrace.
Emsley, G. A.	Clarendon Mount.
Fairley, Thomas, F.R.S.E.	8, Newton Grove.
Falcon, Thomas	Pudsey.
Fallow, T. M.	Chapeltown.
Farrar, Abraham, Jun.	115, Hyde Park Road.
Fenwick, Thomas	Allerton Hill, Chapel-Allerton.
Ferns, Francis	Cliff Road.
Foster, A. S.	Garforth.
Fox, James, C. E.	Woodlands, Horsforth.
Fraser, John	Grove House, Headingley.
Gamble, J. H.	Kendall Street.
Gaunt, Miss	4, Victoria Place, Camp Road.
Goldie, George, M.D.	Fitzroy Villa, Crimble Street.
Goodall, Charles	Francis Street, New Leeds.
Goodier, Rev. J. H.	St. Jude's, Hunslet Lane.
Granger, Charles	Newton Grove, Chapeltown Road.
Green, Prof., M.A.	5, Marlborough Terrace, Belle Vue Road.
Greene, John	Whinmoor, near Seacroft.
Greenwood, Frederick	School of Medicine, Park Street.
Greenwood, W. F.	Park Villas, Hyde Park Road.

Haigh, Rev. C. D., M.A.	3, Woodsley Terrace.
Hall, Frederick	North Street.
Hall, William	1, Hillary Place.
Hallilay, John	Burley Road.
Hamilton, R. W.	Cardigan Villas, Shaw Lane, Headingley.
Hammond, Thomas, Jun.	13, Hanover Square.
Handcock, George	5, Leopold Mount, Chapeltown Road.
Harding, T. W.	Hillary Lodge, Cavendish Road.
Hargrave, Charles	Oxley Hill, Moortown.
Harrison, Rev. F. L.	Vicarage, Burley.
Harrison, R. B.	6, Richmond Road, Headingley.
Harvey, Thomas	Ashwood, Headingley Hill.
Hassé, A. B.	31, Commercial Street.
Headland, Thos., Jun.	49, Briggate.
Heald, Alfred William	8, Springfield Mount.
Hebblethwaite, A. R.	12, Blenheim Terrace.
Hebblethwaite, W. J.	Moor Allerton.
Hennessy, J. F.	84, Briggate.
Hewetson, Henry.	2, Moorland Road.
Hezmalhalch, Joseph	Thorner.
Hill, John William, M.A.	Lynton Villa, Mount Preston.
Hill, M. S.	30, Mount Preston.
Hindle, J. E.	North Grange, Horsforth.
Hirst, J. A.	Hyde Lodge, St. John's Hill.
Hobson, Frederick	49, Briggate.
Hodgson, J. P.	10, De Grey Terrace.
Holmes, John	Methley.
Holmes, Joseph	92, Meadow Lane.
Hudson, Walter	Grey Stone House, Adwalton.
Hudswell, W.	Spencer Terrace, New Leeds.
Huggon, William, F.C.S.	50, Springfield Place.
Hurd, Samuel	Leopold Mount, Chapeltown Road.
Irwin, George	30, Albion Street.
Jackson, G. W.	5, Park Place.
Jackson, William Thomas	Headingley Hill.
Jefferson, William Lonsdale	15, York Place.

Jefferson, S., F.C.S.	17, Virginia Road.
Jepson, E. G.	8, Woodsley Terrace.
Jessop, T. R., F.R.C.S.	32, Park Square.
Jowitt, Miss	5, Newton Grove, New Leeds.
Joy, Lomas	Harrogate.
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Kirk, James	Killingbeck Hall.
Knight, J. C.	Queen's Place, Chapel-Allerton.
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Reynolds, Freshfield	13, Briggate.
Richardson, Rev. E. A	30, Cliff Road.
Rider, James	4, High Royd, Belle Vue Road.
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Robinson, Frederick	14, Mount Preston.
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Walker, A. T.	Newton Grove.
Walker, Henry	Oak House, Headingley.
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Ward, Richard	Moor Road, Far Headingley.
Wardle, C. W.	Whitkirk.
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Wheelhouse, C. G., F.R.C.S.	Hillary Place.
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Hirst, Mrs. J. A.	Hyde Lodge, St. John's Hill.
Hodgson, Mrs. J. P.	10, De Grey Terrace.
Holmes, Mrs. J.	Methley.
Hudson, Mrs.	Grey Stone House, Adwalton.
Hudswell, Mrs.	Spencer Terrace, New Leeds.
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Jackson, Mrs. G. W.	5, Park Place.
Jefferson, Mrs.	17, Virginia Road.
Jepson, Mrs.	8, Woodsley Terrace.
Jessop, Mrs.	32, Park Square.
Jowitt, Miss E. M.	5, Newton Grove, New Leeds.
Jowitt, Miss F.	Harehills Grove, Potternewton.

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Lawson, Miss	Do.
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Middleton, Miss	Do.
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Nelson, Miss L.	Do. do.
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Passavant, William	De la Haye House, Chapeltown Road.
Passavant, Miss	Do. do.
Passavant, Miss L. M.	Do. do.
Passavant, Miss Fanny	Do. do.
Payne, E. S.	13, Briggate.

Pettitt, Mrs.	Wortley Vicarage.
Pope, Miss	Farfield, Moor-Allerton.
Rayner, Mrs. G.	Hyde Gardens, Clarendon Road.
Rayner, Miss	17, Vernon Road.
Reffitt, Mrs.	5, Victoria Terrace, Belle Vue Road.
Richardson, Mrs.	30, Cliff Road.
Rider, Mrs. J.	High Royd, Belle Vue Road.
Robinson, Mrs. Alfred	49, Lofthouse Place.
Robinson, Mrs.	The Manor House, Farnley.
Robinson, Miss	Do. do.
Rooke, Miss	Newton Hill, Potternewton.
Rooke, Miss E. M.	Do. do.
Rowley, Mrs.	South Milford.
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Rushworth, Miss Caroline	Do. do.
Russell, Miss	W. H. Bartholomew, Albion Villas, New Leeds.
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Ryder, C. F.	Do. do.
Ryder, Miss E. A.	Do. do.
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Wright, Miss	Phœnix Lodge, Chapel-Allerton.
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PRINTED AT THE OFFICE OF THE YORKSHIRE POST, LEEDS.

THE

FIFTY-SIXTH REPORT

OF

THE COUNCIL

OF THE

LEEDS

PHILOSOPHICAL & LITERARY

SOCIETY,

AT THE

CLOSE OF THE SESSION 1875-76.

Read at the Annual Meeting, May 2nd, 1876.

LEEDS:
PRINTED AT THE OFFICE OF THE YORKSHIRE POST.

MDCCCLXXVI.

IMPORTANT RULE

RESPECTING THE PROPERTY OF THE SOCIETY,

PASSED OCTOBER 8TH, 1860.

That in the event of a dissolution of this Society, its Property and Effects, whether real or personal, shall not be disposed of for the personal benefit of the Members, but shall be appropriated in such manner for the advancement of Science, Literature, or Art, in the town of Leeds, as shall be determined by a majority of the Members at an extraordinary Meeting to be convened for that purpose. But that no dissolution of the Society shall take place without the consent in writing of a majority holding not less than two-thirds of the Proprietary Shares.

FORM OF A BEQUEST TO THE SOCIETY.

Every person desirous of bequeathing to the Society any sum of Money, Specimens, Books, Instruments, or other Property, is requested to make use of the following FORM :—

I give and bequeath to the Trustees for the time being of the Society established at Leeds, called "THE LEEDS PHILOSOPHICAL AND LITERARY SOCIETY," *for the use of the said Society, the sum of , to be paid out of such part of my personal Estate as I may legally charge therewith.* [Or here enumerate the Effects or Property intended to be bequeathed]. *And I direct that the Receipt of the Treasurer of the said Society for the time being, shall be an effectual discharge to my Executors for the said Legacy.*

REPORT OF THE COUNCIL

AT THE CLOSE OF THE

FIFTY-SIXTH SESSION.

The Council report with satisfaction that the numbers of the Society's Members and Subscribers have been fully maintained during the session now ending. The following table supplies particulars for comparison with past years :—

	1874-5.	1875-6.
Original Proprietary Members (78 shares)	71	71
New Proprietary Members (120 shares)	97	97
Ordinary Members	12	13
New Ordinary Members	87	86
Annual Subscribers of £1 1s.	240	247
Annual Subscribers of 7s. 6d.	207	216
Total	714	730

There appears no good reason why a decided increase of Subscribers should not be effected, and the Council trust that their successors may hold a similar opinion, and that they will take steps to canvass for additional names.

The Society has again received a donation of £10 from Thomas Emsley, Esq., of Burley-in-Wharfedale. The President, Mr. J. I. Ikin F.R.C.S., has rendered a special service to the Society during the past year by raising, on his personal solicitations, the handsome sum of £100 as a special fund. The names of the contributors to this fund and a statement of the distribution of the

money among various departments of the Society's operations will be found in a separate balance sheet.

The Marquis of Ripon, K.G., kindly consented to deliver the opening address of the past session, in which he took a comprehensive review of the present state of education in this country. The titles of the remaining lectures and papers are given in the subjoined list :—

1. The Opening Address. The Most Hon. the Marquis of Ripon, K.G. *Oct. 21st*, 1875.
2. "Apes." Prof. St. George Mivart, F.R.S. *Read Nov. 2nd*, 1875.
3. "The Theory of Musical Instruments." Part I. Stringed Instruments. With Illustrations. W. H. Stone, M.D. *Read Nov. 16th*, 1875.
4. "The Theory of Musical Instruments." Part II. Wind Instruments. With Illustrations. W. H. Stone, M.D. *Read Nov. 23rd*, 1875.
5. "Japan and the Japanese." C. O. Shepard, late U.S. Consul at Yokohama. *Read Nov. 30th*, 1875.
6. The Conversazione. *Dec. 7th*, 1875.
7. "Spenser's Faerie Queene." Prof. Henry Morley. *Read Dec. 16th*. 1875.
8. "The Voyage of the Valorous, and the Objects of the Arctic Expedition." Clements R. Markham, C.B., F.R.S. *Read Dec. 21*, 1875.
9. "Politian and Hutten; two Renascence Sketches." Prof. A. W. Ward, M.A., Owens College, Manchester. *Read Jan. 4th*, 1876.
10. Second Lecture. Prof. A. W. Ward, M.A. *Read Jan. 11th*, 1876.
11. "Francis Bacon as a Scientific Reformer." Rev. Thomas Fowler, M.A., Professor of Logic in the University of Oxford. *Read Jan. 18th*, 1876.
12. "On the Composition of Historical Pictures and on Figure-subjects in general." Edward Armitage, R.A. *Read Jan. 25th*, 1876.

13. "Colours from Coal-tar." Sydney Lupton, M.A. *Read Feb. 1st*, 1876.
14. "Railway Safety Appliances." F. J. Bramwell, F.R.S. *Read Feb. 15th*, 1876.
15. "The Birds of the South Pacific." Rev. Canon Tristram, LL.D. F.R.S. *Read Mar. 7th*, 1876.
16. "Coinage in Ancient and Modern Times." W. Chandler Roberts, F.R.S., Chemist to the Royal Mint. *Read Mar. 21st*, 1876.

On some occasions the attendance at the lectures has been smaller than the Council could have wished, a result which must probably be ascribed to the great increase of lectures and other evening engagements in this town. The list just given is a sufficient proof that the quality of the discourses has not deteriorated, and the Council think that the average attendance at the Society's Meetings may be improved by such an increase of subscribers as that to which they have alluded.

The Annual Conversazione was held on December 7th, and was, as usual, well attended. The chief feature was the exhibition of British Pottery and Porcelain, comprising choice examples of Prehistoric, Roman and Mediæval Pottery, and of the chief modern manufactures, especially Wedgwood, Leeds, Chelsea, Derby, Worcester, and Rockingham. The principal contributors were E. O. Dykes, Esq., Thomas Eagland, Esq., F. Ferns, Esq., John Holmes, Esq., John Horsfall, Esq., G. Hird Nelson, Esq., and John Rhodes, Esq. The collections were illustrated by an address on the "The History of the Potter's Art in Britain," delivered in the Lecture Hall by Professor F. W. Rudler, of the University College of Wales. Electrical and magnetic apparatus from the Yorkshire College of Science, was exhibited and briefly explained by Prof. A. W. Rücker, M.A.

Mr W. Howgate provided a large and interesting collection of paintings, drawings, and sketches, to which the Library was allotted. Among other objects exhibited were Thomas de Colmar's arithmometer, shown by Professor Thorpe, steel breech-loading field piece (Broadwell's system), by Messrs. Greenwood & Batley; meteorological instruments, by Messrs L. J. Crossley and J. Gledhill, Halifax; spectroscopes and polariscopes, by Mr. H. Pocklington; and toughened glass, by Messrs. Powell & Sons, London.

The interior of the Museum has received extensive repairs during the past year, the entrance hall, office, industrial museum, staircase, and geological rooms having been recoloured. The stonework of the portico being disfigured by the decay of several stones has been efficiently cleansed, and the appearance of the entrance has been considerably improved thereby. The ventilation of the lecture hall has received much attention from a Sub-committee. Acting upon information collected by this Committee, the Council have placed upon the building one of Boyle's ventilators. They have the satisfaction of believing that this alteration has maintained greater purity in the atmosphere of the lecture hall.

The following are the most noteworthy additions to the Museum. A valuable and extensive collection of British birds in admirable preservation has been presented by the representatives of the late John Heaton, Esq., through J. D. Heaton, Esq., M.D., one of the vice-presidents of the Society. A large number of British birds, selected by the officers of the Society, has been purchased by means of a liberal donation from the Mayor of Leeds (Alderman Croft.) These donations have greatly aided

the renewal now in progress of this important and popular department.

A collection of vertebrate fossils, from the Red Crag of Suffolk, has been purchased by the Council from the cabinet of the late Mr. Baker, of Woodbridge. The rarity of these fossils and the importance of the palæontological questions resting upon their interpretation, give them great value in the eyes of collectors and students. Amongst the examples procured are teeth of Mastodon arvonensis (an excellent series), Tapir, Trichechodon (an extinct Walrus), and Hipparion (an extinct equine). The Council have been assisted in making this purchase by donations from John Rhodes, Esq., and R. B. Turner, Esq. Later in the session an opportunity offered of procuring some of the rarer mollusca of the Red Crag, and the Council purchased a small but valuable series on advantageous terms.

Mr. H. B. Brady, F.R.S., has sent a series of examples of Palæozoic Foraminifera, specially valuable as having the authority of his name.

A large number of specimens of Amphioxus lanceolatus, the lowest known Vertebrate, has been presented by Dr. Anton Dohrn, of the Zoological Station at Naples. This singular animal is in all probability an example of retrogade development, of which the Ascidians represent a further stage in the same direction. The influence of the discovery of Amphioxus upon biological speculation has been very important, and it is of special interest just now to have obtained a good supply of examples. The specimens are preserved in different solutions, and are well suited for microscopical investigation.

The Rock Collection has received many additions

during the past year, but there are still important deficiencies, which cannot be readily supplied.

The dissection of the Indian Elephant has been carried on throughout the past year by the Curator and Mr. F. Greenwood, of the School of Medicine. It is of interest to notice that the simple precautions taken have entirely prevented putrefaction, and all parts of the animal are still sound and unaltered in appearance. A large series of drawings has been made, and the dissectors' notes already contain a nearly complete account of the structure of the Elephant, so far as it is to be ascertained by the ordinary processes of anatomical research. A short paper on the Venous Plexuses of the Elephant was communicated to the Biological Section of the British Association in August last, and it is hoped that a description at large will shortly appear in the publications of one of the learned Societies.

A new collection of examples of the dentition of Mammalia is in process of formation and arrangement. As yet there are many blanks in the series, which can only be supplied slowly as opportunity may offer. It is hoped that the collection may prove of special use to students of Mammalian fossils, and particularly to those engaged in the determination of bones from pleistocene deposits and ossiferous caves. Teeth are found in predominant numbers in such situations, and they furnish in most cases indubitable evidence as to zoological position, but the work of systematic comparison requires a carefully selected series of types, such as hitherto exists in no provincial museum. It is hoped that when the present collection is further advanced it may prove serviceable for the identification of the pleistocene and

post-glacial mammalia so often found in this district, as well as adapted to the wants of elementary students of zoology.

A copy of Cuvier and Laurillard's Myologie, illustrated by 330 folio plates, has been purchased in Berlin out of the President's Special Fund.

Two important additions have been made to the department of Antiquities. Among the most noteworthy objects of the recent Yorkshire Exhibition was the selection of Cyprian pottery, exhibited by Consul Sandwith, late of Crete. An opportunity occurred of purchasing from this valuable collection, and a number of vessels were secured for the Museum by a grant from the President's Special Fund. The pottery is of great antiquity, dating from several centuries before the Christian era. It is chiefly sepulchral, and interesting on account of its simplicity and the light which it throws upon the derivation of the common types of Greek vessels from such natural objects as skins, gourds, and horns. Added to a series already possessed by the Society, this recent acquisition renders our ceramic collection fairly rich in early examples. The Society has also received by donation from Mr. Edward Tindall of Bridlington an extensive and valuable collection of neolithic flint implements, a supplement to former gifts and including specimens selected from the gatherings of twenty years. Our Museum may now claim to rank high among provincial collections of prehistoric work.

The re-arrangement of the Mammalia has received attention from the Curator during the past year. The remainder of the collection has been cleaned and replaced, printed labels having been substituted for the

written ones previously in use. Three large ebonized show cases, purchased from the Yorkshire Exhibition, have been placed in the Mammalian Room. It is the present intention of the Curators of this department to use them for the display of illustrations of the dentition of Mammalia and similar special subjects.

The admissions to the Museum have exceeded those of any previous year, amounting to 51,112. This large number is no doubt partly due to the strangers brought to the town by the Yorkshire Exhibition of Arts and Manufactures, held last summer, but there is reason to believe that there is a steady increase from year to year in the number of visitors to the Museum, beyond what is due to exceptional circumstances.

An invitation from the Town Council to the British Association for the Advancement of Science, proposing that Leeds should be fixed upon at an early date as the place of meeting, was supported by a deputation from the Council of this Society. The invitation was favourably received, and will not improbably be accepted for 1878, by which time twenty years will have elapsed since the former visit of the Association to Leeds.

The Council have noticed with satisfaction the formation of a new scientific association among the members of the Society and a few gentlemen in neighbouring towns. It has adopted the title of "The Priestley Club," and holds its meetings at the Museum. Fourteen meetings have been held since October last, and at each meeting three or four papers by members of the Club have been read and discussed. Although the scope of the new association appears to be limited to the physical or natural sciences, the importance of these subjects can hardly be overrated,

whilst the mutual principle upon which the club is based constitutes a return to the system which the Philosophical and Literary Society itself adopted in the early years of its existence. The success which has attended the meetings of the Club justify the Council in regarding it as supplying a valuable stimulus to original scientific work in this town and neighbourhood.

The Council record their sense of the great loss sustained by the Society and by themselves personally in the death of Mr. Thomas Wilson, M.A., for thirteen years one of the Honorary Secretaries of the Society. Mr. Wilson's large experience in educational undertakings and never-failing zeal for their further development peculiarly fitted him for the post which he filled. As a colleague, his invariably genial disposition secured for him the warm personal regard of his fellow members of Council, who also relied upon his matured judgment and systematic thoroughness in the details of any business. Mr. Wilson had taken an active part in the educational agencies of the town for a number of years, and many fruits of his labours are now to be reckoned as secured permanently for those who follow him. To his modest and unostentatious nature this would be the most satisfactory of all rewards.

Three other names have been removed from the Society's roll, by death, during the past year, viz., Mr. William Hey, Mr. T. T. Dibb, and Dean Hook.

Mr. William Hey, F.R.C.S., was one of the oldest members of the Society, and the name of his family has ever been honourably associated with its records. He had filled the office of Vice-President, and the Museum

contains many proofs of his willingness to contribute material support to its collections.

Mr. T. T. Dibb was a valuable member of the Society. When the new building was erected, and when the present code of Rules was framed, Mr. Dibb's sound legal knowledge and good judgment were constantly referred to, and confidence was always felt in following the advice which he freely gave.

The Very Rev. Walter Farquhar Hook, D.D., F.R.S., Dean of Chichester, was one of the Society's Honorary Members. Whilst resident amongst us, as Vicar of Leeds, he filled the office of President of this Society in the year 1858, when he delivered a presidential address on the "Objects and Importance of Philosophical and Literary Institutions." Dean Hook's untiring devotion to the literary work which he had undertaken is commemorated by writings which English literature will preserve. In the town of Leeds, to which he was so much attached, and where he had exerted so powerful an influence for good, a feeling of personal esteem will long be associated with his memory.

Summary of Meteorological Observations taken at the Philosophical Hall, Leeds, during the year 1875.

1875.	Mean Temperature.	Mean Height of Barometer.	Total Amount of Rain in Inches.
January.	42·5 Fah.	29·681	3·511
February	36·9 ,,	29·922	1·287
March	40·9 ,,	30·025	0·479
April	48·0 ,,	29·882	0·498
May	55·3 ,,	29·797	1·456
June.	58·8 ,,	29·704	2·285
July	61·5 ,,	29·820	3·109
August	61·6 ,,	29·851	1·724
September.	59·0 ,,	29·873	2·739
October.	48·0 ,,	29·615	4·188
November	42·6 ,,	29·639	3·755
December	40·8 ,,	29·904	0·800

The mean monthly temperature was 49·6°.

The mean monthly height of the barometer was 29·809 inches.

The total rainfall for the year was 25·831 inches.

The greatest degree of heat, as indicated by the thermometer in the sun, was 112° on July 5, August 20 and 29; the greatest in the shade was 85° on August 16; and minimum 12° on January 1.

The greatest barometric pressure was on December 30, being 30·880 inches, the temperature of the mercury being 53°; the least pressure was on November 6, being 28·860 inches, the temperature of the mercury being 60°.

The greatest fall of rain (during 24 hours) was on October 20, being 1·315 inches.

Latitude 53° 48′ 20″ N.; longitude, 1° 33′ W. Height of the cistern of the barometer above the mean level of the sea, 137 feet; height of the rain-gauge above the street, 46 feet.

LEEDS PHILOSOPHICAL AND LITERARY SOCIETY.

STATEMENT OF RECEIPTS AND EXPENSES FOR THE YEAR 1875-6.

RECEIPTS.	£	s.	d.	£	s.	d.
To Bankers' Balance	149	8	10			
,, Curator's Ditto	13	0	10			
				162	9	8
84 New Proprietary Members, at 21*s.*	88	4	0			
60 New Ordinary Members, at 21*s.*	63	0	0			
13 Old Ordinary Members, at 42*s.*	27	6	0			
188 Old Annual Subscribers, at 21*s.*	197	8	0			
24 New Annual Subscribers, at 21*s.*	25	4	0			
158 Old Annual Subscribers, at 7*s.* 6*d.*	59	5	0			
24 New Annual Subscribers, at 7*s.* 6*d.*	9	0	0			
,, Arrears...	6	6	0			
				475	13	0
,, Rents of Cellars	63	0	0			
,, Rents of Lecture Room	168	3	0			
				231	3	0
,, Receipts for the Museum	212	19	4			
,, Receipts for the Conversazione ...	16	10	0			
				229	9	4
,, Sale of Catalogues and Descriptive Guides	2	8	8			
,, Sundries	0	10	4			
				2	19	0
,, Donations—J. Rhodes	2	0	0			
,, T. Emsley	10	0	0			
,, R. B. Turner	1	15	0			
				13	15	0
From President's Special Fund... ...	...		...	22	14	8
Due to Curator	...		..	0	3	0
				£1138	6	8

DISBURSEMENTS.	£	s.	d.	£	s.	d.
By Repairs	134	2	2			
,, Taxes and Rates	4	18	9			
,, Insurance	15	0	0			
,, Coals	13	18	6			
,, Gas	17	7	8			
				185	7	1
,, Salaries—Curator's	250	0	0			
,, Assistant Curator's ...	54	18	6			
,, Porter's	67	12	0			
				372	10	6
,, Collections—Geological	19	8	0			
,, Zoological	60	1	6			
,, Archæological... ...	2	10	0			
,, Library...	13	16	8			
				95	16	2
,, Postages	17	8	8			
,, Printing and Advertising	107	7	5			
,, Lectures	158	18	0			
,, Conversazione...	71	11	0			
,, Commission to Collector	11	6	0			
,, Bankers' Commission	0	5	0			
,, Sundries	58	2	6			
,, Law Charges	37	13	10			
				462	12	5
,, Balance—Bankers'	...		...	22	0	6
				£1138	6	8

Examined and found correct,

FRAS. M. LUPTON,
R. B. JOWITT, } AUDITORS.

LEEDS PHILOSOPHICAL AND LITERARY SOCIETY.

PRESIDENT'S SPECIAL FUND, 1875-6.

SUBSCRIPTIONS RECEIVED.

	£	s.	d.
Mrs. Cunliffe Ingham (Overthorp House)	5	0	0
Mrs. Connor (Gledhow Hall)	5	0	0
The Mayor of Leeds (S. Croft, Esq.)	20	0	0
Messrs. Beckett & Co.	10	0	0
W. Aldam, Esq.	5	0	0
E. B. Wheatley Balme, Esq.	5	0	0
Messrs. Fairbairn, Kennedy, & Naylor	5	0	0
F. Darwin, Esq.	5	0	0
Messrs. W. Wms. Brown & Co.	5	0	0
Arthur Marshall, Esq.	5	0	0
Thomas Nussey, Esq.	5	0	0
F. W. Tetley, Esq.	5	0	0
Rev. T. Sheepshanks	5	0	0
Charles Wheatley, Esq.	5	0	0
James Brown, Esq., Rossington	2	2	0
William Brown, Esq., Weetwood	2	0	0
Isaac Burkill, Esq.	2	0	0
Messrs. Boswell & Schofield	1	1	0
Mr. Tiffany	0	10	6
Miss Kemplay	1	1	0
J. I. Ikin, Esq.	1	5	6
	£100	0	0

DISBURSEMENTS.

				£	s.	d.
To Treasurer of Philosophical and Literary Society				22	14	8
,, Do. (Plate Glass Cases)				30	0	0
British Birds—						
Jesse Miller	£1	17	0			
H. J. Burton	1	12	6			
Jesse Miller	1	14	6			
J. Wardman	7	17	6			
				13	1	6
Collection of Cyprian Pottery				14	0	0
Cuvier and Laurillard's Myologie				6	6	0
Auzoux's Physiological Models				8	8	4
Curator's Expenses to London				3	0	0
Purchase of sundry Specimens				1	16	0
Postage, 3s. 6d., Cab Fares, 10s.				0	13	6
				£100	0	0

Correct,

July 21st, 1876. J. I. IKIN.

LIST OF DONATIONS AND ADDITIONS

TO THE

SOCIETY'S MUSEUM AND LIBRARY,

1875-6.

GEOLOGY AND MINERALOGY.

A Collection of Fossils, from the Cambridge Greensand	Prof. T. Mc. K. Hughes.
A Collection of Fossils, from the Bone-bed and other Rhætic deposits of Garden Cliff	John Brigg, F.G.S.
A Collection of Mammalian Remains, from the Red Crag of Suffolk, viz.:— Mastodon arvonensis, worn and unworn molars, various forms of molar ridges, tusks; Mastodon Borsoni, molar; Hipparion, molars, section of molar; Tapirus priscus, molars; Cervus, molar; Ziphius compressus.....	Purchased.
Tusk of Trichechodon (Walrus) from the Red Crag of Suffolk	John Rhodes, and R. Bickerton Turner.
Specimens of Phosphorite and Apatite, from Estremadura.....	Purchased.
Twelve large examples of Pecten cinctus, from Tealby Series	T. W. Eagland.
Ceratodus dædaleus, from Bone-bed of Aust Passage.....	L. C. Miall.
A large Collection of Secondary Brachiopoda, viz.:— Terebratula Davidsoni; T. Fittoni; T. Montoniana; T. Prælonga; T. oblonga Rhychonella Upwarensis; R. antedichotoma; Waldheimia obovata.	J. F. Walker, M.A., F.G.S.
Sphærodus, Terebratula, Cardium, &c., from Lower Greensand, Great Brickhill, Leighton Buzzard.....	Rev. W. T. Adey.
Gryphæa dilatata, Trigonia dædalea, Belemnites abbreviatus, Crystal of Selenite, from Drift of Bedfordshire	A. W. Cook, Wellhouse School, Mirfield.
Concretions from Metamorphic Rocks—Jersey—(10 specimens).....	W. C. Swithenbank, Armley

Collection of Palæozoic Foraminifera, mounted for the Microscope, viz.:— Endothyra ammonoides, Endothyra crassa, Endothyra radiata, Endothrya ornata, Endothyra globulus, Endothyra tenuis, Endothyra Bowmanni, Valvulina plicata, Valvulina bulloides, Valvulina palæotrochus (2 specimens), Valvulina decurrens, Lituola Bennieana, Rotalia Baileyi, Climacammina antiqua, Trochammina centrifuga, Trochammina incerta, Stacheia pupoides, Nodosaria radicula	H. B. Brady, F.R.S., Newcastle-upon-Tyne.

ZOOLOGY AND BOTANY.

Collection of British Birds	Purchased.
Craticus torquatus; Coracias Abyssinica; Juida cupreocauda; Nectarina Senegalensis; Artamus bicolor; Chalcophaps Moluccensis; Yphantes Baltimore; Chlorophonia callophrys; Tanagra passerini; Dacelo Gaudichaudi; Attagis Gayi; Cissa speciosa; Ocyalus Wagleri; Cacicus citrius; Lopholaimus antarcticus; Carpophaga Novæ Zealandiæ; Noctua passerina; Mimotus Lessoni; Pteropus Ægyptiacus; Pteropus Sp.	Purchased.
British Birds, viz.:—Blackbird (2 specimens); Starling, Bullfinch, Siskin, Robin, Wren, Fieldfare, Yellow Bunting, Blue Tit (2 specimens); Cole Tit, Black Tern, Lesser Tern, Common Tern, Creeper (3 specimens); Wren (2 specimens); Swift (2 specimens); Nuthatch (2 specimens); Carrion Crow, Golden Oriole, Common Snipe, Nightingale, Hawfinch, Hedge Accentor, Rock Pipit, Alpine Accentor, Rock Thrush, White's Thrush, Woodchat Shrike, Garganey, Glaucous Gull, Great Black-backed Gull, Merlin (2 specimens); Bunting (2 specimens); Kingfisher (2 specimens); Sedge Warbler (3 specimens); Dipper, Curlew, Black-headed Bunting, Turnstone, Golden Plover, Redshank (2 specimens); Teal, Redwing, Whinchat (2 specimens); Wheatear (2 specimens); Greater Tit, Wood Lark, Meadow Pipit	Alderman Croft, Mayor of Leeds.

Redpole, Linnet	T. W. Pollard.
Hooded Crow	T. W. Stansfeld.
Eagle Owl, Snowy Owl, Marsh Harrier, Common Buzzard, Rough-legged Buzzard, Sparrow Hawk, Hoopoe, Black Grouse (2 specimens); Ptarmigan (2 specimens); Little Bittern, Red Grouse (2 specimens); Partridge (2 specimens); Red-legged Partridge, Smew, Pintail Duck, Goosander, Pochard, Scaup Duck, Tufted Duck, Kestrel (2 specimens); Great Gray Shrike (2 specimens); Merlin, Long-eared Owl, Little Owl, White Owl, Scops-eared Owl, Short-eared Owl, Tawny Owl, Hen Harrier, Ruff, Missel Thrush, Starling (2 specimens); Bohemian Wax-wing (2 specimens); Fieldfare, Red-wing, Knot, Bar-tailed Godwit (2 specimens); Redshank, Whimbrel, Turnstone, Green Sandpiper, Greenshank, Great Plover, Dotterel, Ringed Plover, Land Rail, Water Rail, Moor Hen, Magpie, Green Woodpecker, Dipper, Blackbird, Creeper, Ring Ouzel, Ring Dove, Nightjar, Wryneck, Kingfisher, Cuckoo, Jay, Golden Eye, Red-breasted Merganser, Grey Plover, Sanderling (2 specimens); Curlew Sandpiper, Purple Sandpiper, Dunlin, Stock Dove, Nutcracker, Nuthatch, Spotted Crake, Golden Plover, Red-backed Shrike ...	Representatives of the late John Heaton.
Lophophorus Impeyanus	Lieut.-Col. Henry Hamer Stansfeld, Simla.
Skulls of Sula, Recurvirostra, Gymnorhina, Thrasætus, Loxia, Numenius, and eight others	Purchased.
Feathers of Emeu	Prof. A. H. Garrod, M.A.
Young specimen of Crocodilus acutus ...	Purchased.
Amia calva (in spirit)	Purchased.
Lepidostens osseus (in spirit)	Purchased.
Skull of Camel, Hare's Skull, with deformed incisors	Purchased.
Specimens of Amphioxus lanceolatus preserved in alcohol, picric acid, and Müller's fluid	Dr. Dohrn, Zoological Station, Naples.

TECHNOLOGY.

Specimens of Wrought Iron Forgings ...	R. Coultish, Stanningley
Specimens of Brass Work, shewing stages of Watchmaking	R. Coultish, Stanningley.

ARCHÆOLOGY AND ETHNOLOGY.

Carved Tablet, with figures in high relief (13½in. by 8in.), from ruined Buddhist city near Hoti Nurdan, Peshawur district. Exhumed in 1874 by Lieut. Hare, R.E.	C. Pickard, late Raurel Pindee Gas Works, Punjaub.
Further collection of Flint Implements from Adel	Charles G. Twigg, Reformatory, Adel.
Collection of Neolithic Flint Implements from Bridlington and the neighbourhood	Edward Tindall, Bridlington.
Bow and Arrows from W. Africa	Rev. C. Edwards, Tong Parsonage.

MISCELLANEOUS.

Portrait of the late General Chesney, in chalk, by Sir John Gilbert	Bequeathed by the late William Hey.

PUBLICATIONS.

Greenwich Observations (1873)	The Astronomer Royal.
Synopsis of the Newcastle Museum, by George Townshend Fox (Newcastle, 8vo., 1827)	Rev. W. T. Adey.
Cuvier and Laurillard's Myologie, Paris, folio, 1849	President's Special Fund.
The Japanese Expedition to Formosa, by Edward H. House. Tokis, 8vo., 1875	C. O. Shephard, United States Consul, Leeds.....
Weather Charts of Meteorological Office.	E. Filliter.
Codices Syriaci de secundâ synodo Ephesina; Edited by S. G. F. Perry, M.A.	The Author, Tottington.
Circular No. 8, Report on Hygiene of U.S. Army (pamphlet) ..... Ocean Currents, pt. III. (pamphlet)	Surgeon-General U.S. War Department, Washington.
"Jeffries Wyman." (pamphlet)	Boston Society of Natural History.

Fourth Annual Report of Meteorological Office of Canada, 1874	G. F. Kingston, Superintendent Meteorological Office, Toronto.
Guide to Belfast	Belfast Naturalist Field Club.
Reliquiæ Aquitanicæ, pts. 15, 16, 17	Executors of the late Henry Christy.
Man and Apes, by Prof. St. George Mivart, F.R.S.	Purchased.
Catalogue of Oriental Coins, Vol. I	Trustees of the British Museum.
Catalogue of Marine Polyzoa in the Collection of the British Museum, Pt. III., Cyclostomata	Trustees of the British Museum.
Ancient Greek Inscriptions in British Museum, Pt. I., Attika	Trustees of the British Museum.
The Cuneiform Inscriptions of Western Asia, Vol. IV	Trustees of the British Museum.
Catalogue of the Pottery and Porcelain in the Museum of Practical Geology, by Trenham Reeks and F. W. Rudler	Prof. F. W. Rudler.
Catalogue of Mammalian Remains from Ilford	Sir Antonio Brady.
Geological Record for 1874	Purchased.
Catalogue of the Spanish MSS. in the British Museum, by Don Pascual de Gayangos, Vol. I	Trustees of the British Museum.
Catalogue of the Additional MSS., 1854-60	Trustees of the British Museum.
Catalogue of Birds, by R. B. Sharpe, Vol. II.; Sub-order Striges	Trustees of the British Museum.
The complete Works of Count Rumford, Vol. IV	American Academy of Arts and Sciences, Boston.
Publications of the Royal Swedish Academy of Sciences at Stockholm (17 pamphlets)	The Academy.
Geology for Students, by Prof. A. H. Green, M.A.	Purchased.

Ancient Stone Implements of Great Britain, by John Evans, F.R.S.	Purchased.
Magnetical and Meteorological Observations—Cape of Good Hope—Vol. XI...	Presented by Her Majesty's Government.
Ray Society's Publications :—	Purchased.
Memorials of Ray, 1844	
Reports of the Progress of Zoology and Botany, 1845	
Reports and Papers on Botany, 1845...	
Alternation of Generations, 1845	
Botanical Geography, 1846	
Reports on Zoology, 1847	
Elements of Physiophilosophy, 1847...	
Correspondence of John Ray, 1848 ...	
Bibliographia Zoologiæ, Vols. I., II., III., IV., 1848-54	
Natural History of the British Entomostraca, 1849	
Reports and Papers on Botany, 1849...	
Monograph of the Cirripedia, Vol. I., 1851	
Angiocarpous Lichens, 1851	
Botanical and Physiological Memoirs, 1853	
Monograph of the Cirripedia, Vol. II., 1853	
Fresh Water Polyzoa, 1856.....	
Philosophical Transactions, 1775-1799....	S. Hey.
Birch's History of the Royal Society, London, 8vo.	S. Hey.
Bulletin of the U.S. Geological and Geographical Survey of the Territories ...	Dr. F. V. Hayden, State Geologist, U.S.
Revised List of the Vertebrate Animals in the Gardens of the Zoological Society	The Zoological Society.
Report of the U.S. Geological Survey of the Territories, Vol. II., Cretaceous Vertebrate, by E. D. Cope, Washington ...	Dr. F. V. Hayden, State Geologist, U.S.
Report of the U. S. Geological Survey of the Territories, Vol. VI., Cretaceous Flora, by Leo Lesquereux, Washington	Dr. F. V. Hayden, State Geologist, U.S.

PERIODICALS.

WEEKLY.

Nature	Purchased.
Leader (Australian Newspaper)	Publishers.
Australasian	Publishers.

MONTHLY.

Annals and Magazine of Natural History Geological Magazine.....	Purchased.
Illustrated Australian News	Publishers of the "Leader."
Monthly Notices of the Proceedings of the Royal Society of Tasmania (yearly) ...	Royal Society of Tasmania.
Journal of the Chemical Society	Chemical Society.
Bulletin of the Essex Institute	Essex Institute, U.S.A.
Monthly Notices of the Royal Astronomical Society.....	Royal Astronomical Society.

QUARTERLY.

Quarterly Journal of Science ..... Quarterly Journal of Microscopical Science	Purchased.
Quarterly Journal of Geological Society .	Geological Society.
Quarterly Returns of Marriages, Births, and Deaths.....	Registrar General.
Journal of the Royal Historical and Archæological Association of Ireland .	Royal Historical and Archæological Association of Ireland.
Journal of the Anthropological Institute .	Anthropological Institute.
Proceedings of the Geologists' Association	Geologists' Association.
Zeitschrift für Wissenschaftliche Zoologie	Purchased.
Canadian Journal of Science, Literature, and History	Canadian Institute, Toronto.

ANNUALLY.

Philosophical Transactions	Purchased.
Mineral Statistics of the United Kingdom	Director General of the Geological Survey.
Annual Report of the Yorkshire Philosophical Society	Yorkshire Philosophical Society.
Proceedings of the Glasgow Philosophical Society	Glasgow Philosophical Society.
Mittheilungen der kais. und königl. geographischen Gesellschaft in Wien	Royal Imperial Geographical Society of Vienna.
Proceedings of the Academy of Natural Sciences of Philadelphia (3 pts. a year)	Academy of Natural Sciences of Philadelphia.
Radcliffe Astronomical and Meteorological Observations	Radcliffe Trustees.
Proceedings of the Royal Society of Edinburgh Transactions of do	Royal Society of Edinburgh.

Reports of the Medical and Surgical Registrars of the Middlesex Hospital .	The Hospital.
Publications of the Ray Society.....	Purchased.
Abstract of the Proceedings of the Liverpool Geological Society	Liverpool Geological Society.
Transactions of the Edinburgh Geological Society	Edinburgh Geological Society.
Kongliga Svenska Vetenskaps Akademiens Handlingar Do. do. Lefnadsteckninghar Ofversigt af Kongliga Vetenskaps Akademiens Förhandlingar.....	Royal Swedish Academy of Sciences.
Natural History Transactions of Northumberland and Durham	Natural History Society of Northumberland, Durham, and Newcastle-upon-Tyne, and Tyneside Naturalists' Field Club.
Proceedings of the Berwickshire Naturalists' Club	Berwickshire Naturalists' Club.
Proceedings of the Liverpool Literary and Philosophical Society	Liverpool Literary and Philosophical Society.
Proceedings of the Boston Society of Natural History Memoirs of do.	Boston Society of Natural History.
Transactions of the Historic Society of Lancashire and Cheshire	Historic Society of Lancashire and Cheshire.
Memoirs of the Royal Astronomical Society	Royal Astronomical Society
Greenwich Observations	Lords of the Admiralty.
Transactions and Proceedings of the New Zealand Institute	New Zealand Institute.
Proceedings of the Warwickshire Naturalists' and Archæologists' Field Club	Warwickshire Naturalists' and Archæologists' Field Club.
Annual Report and Papers of the Associated Architectural Societies	Associated Architectural Societies.
Journal and Annual Report of the Royal Institution of Cornwall	Royal Institution of Cornwall.
British Association Report	British Association.
Annual Report of the Royal Cornwall Polytechnic Society	Royal Cornwall Polytechnic Society.
Annual Report of the Smithsonian Institution	Smithsonian Institution.

Annual Report of the Warwickshire Natural History and Archæological Society	Warwickshire Natural History and Archæological Society.
Annual Report of Harvard College	The College.
Annual Report of Harvard University...	The University.
Annual Report of the U.S. Patent Office	United States Patent Office.
Annual Report of the Hull Literary and Philosophical Society	Hull Literary and Philosophical Society.
Annual Report and Proceedings of the Belfast Naturalists' Field Club	Belfast Naturalists' Field Club.
Annual Report of the Geologists' Association	Geologists' Association.
Annual Report of the Museum of Comparative Zoology at Harvard College, U.S.A.....	Museum of Harvard College, Cambridge, Mass.
Annual Report of the Birkenhead Literary and Scientific Society	Birkenhead Literary and Scientific Society.
Annual Report of the Sheffield Literary and Philosophical Society	The Society.
Yorkshire Archæological and Topographical Journal	Yorkshire Archæological and Topographical Association.
Proceedings of the Royal Society	Royal Society.
Smithsonian Miscellaneous Collections ... " Contributions to Knowledge	Smithsonian Institution.
Memoirs of the Manchester Literary and Philosophical Society ..... Proceedings do. (about fortnightly, Oct. to April).....	Manchester Literary and Philosophical Society.
Journal of the Royal Dublin Society (about once a year)	Royal Dublin Society.
Proceedings of the Royal Institution (2 pts. a year).....	Royal Institution of Great Britain and Ireland.
Proceedings of the Zoological Society (3 pts. a year—May, Oct., March)	Zoological Society.
Edinburgh Astronomical Observations ...	Royal Observatory, Edinburgh.
Proceedings of the American Academy of Arts and Sciences	American Academy of Arts and Sciences.
Report of the Smithsonian Institution ...	Smithsonian Institution.
Transactions of the American Philosophical Society ..... Proceedings do. (several pts. a year)	American Philosophical Society.

Abridgments of Specifications of Patents, with Indices	Commissioner of Patents.
Transactions of the Academy of Sciences of St. Louis	The Academy of Sciences of St. Louis, U.S.
Oversigt over det Kongelige Danske Videnskabernes Selskabs Forhandlinger	Royal Danish Society of Sciences.
Proceedings of the Royal Irish Academy	Royal Irish Academy.
Journal of the Royal Geological Society of Ireland	Royal Geological Society of Ireland.
Transactions of the Manchester Geological Society	Manchester Geological Society.

LIST OF OFFICERS AND COUNCIL,

1876-7.

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1875-6.

** Members deceased, whose shares have not been transferred.*

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EXEMPT FROM ANNUAL SUBSCRIPTIONS.

2	Aldam, Wm., M.A.	Frickley Hall, Doncaster.
3	Armitage, Wm. James	Southgate, London, N.
4	Arthington, Robert	73, Hunslet Road.
1	Atkinson, John William.	13, Woodhouse Square.
5	Baines, Edward	St. Ann's Hill, Burley, near Leeds.
6	Barran, John, M.P.	Chapel-Allerton Hall.
20	Battye, James C.	Spring Field, Yeadon.
18	Bilbrough, Alfred	15, Beech Grove Terrace.
8	Binks, Samuel	York Place.
9	Broadhead, Henry	Chapel-Allerton.
10, 11	Brown, James (2 shares)	Rossington, Doncaster.
31, 62	Brown, Samuel James (2 shares)	Loftus Hill, near Knaresborough.
13, 14	Calverley, Edmund (2 shares)	Oulton Hall.
15	Charlesworth, C. H.	Settle.
16	Chorley, Henry	8, Park Square.
17	Clapham, Samuel	19, Cookridge Street.
19	Coghlan, William	Oak Villa, Grosvenor Road.
21	Cudworth, John W.	52, Mount Preston.
22	Denison, William Beckett, M.P.	Meanwood Park.
28*	Dibb, Thomas Townend	
25	Eddison, John Edwin, M.D.	29, Park Square.
26	Ellershaw, John	Oakfield, Kirkstall.
27	Ellershaw, Walter	Hull.
28	Empson, Christopher	Bramhope Hall.

29	Ford, Robert Lawson .	Adel Grange.
46	George, Thomas Willington	Gledhow Grove.
33	Goodman, Benjamin .	Gledhow House.
34, 35	Gott, Rev. John, D.D. (2 shares) . . .	Woodsley House.
36-8	Gott, William Ewart (3 shares) . . .	Armley House.
61	Greenhow, Thomas Michael, M.D. . .	Newton Hall.
39	Harding, T. R. . .	St. Ann's Tower, Headingley.
40	Heaps, John William .	Terrace House, Chapeltown Road.
41	Heaps, Charles Denison .	Woodhouse Lodge, Woodhouse Lane.
42	Heaton, John Deakin, M.D., F.R.C.P. . .	Claremont, Leeds.
44	Hirst, Joseph . . .	Wharfedale Lawn, Wetherby.
45	Holt, Joseph . . .	Wedderburn House, Harrogate.
30	Horsfall, John, M.A., F.R.C.S. . . .	31, Albion Street.
24	Howgate, William . .	Park Row.
47	Ingham, Constantine .	Clarendon Place.
48	Ingham, William . .	Belmont, Chorley Lane.
49	Jowitt, John . . .	Harehills Grove, Potternewton near Leeds.
50*	Joy, William Glover.	
51	Kinnear, Thomas John, M.A.	Horsforth Hall.
52	Latimer, John . .	St. Mark's Villa, Woodhouse Lane.
55	Luccock, John Darnton .	54, North Street.
57	Lupton, Francis . .	Beechwood, Roundhay.
56	Lupton, Sydney . .	The Harehills, Roundhay Road.
58	Makins, Charles . .	17, Craven Hill, Regent's Park, London, N.W.
60	Marshall, Rev. Edmond Henry . . .	Launceston, Cornwall.
63	Marshall, Henry Cowper	Weetwood Hall.
59	Marshall, Arthur, F.G.S.	Headingley House.

64, 65*	Marshall J. G., F.G.S. (2 shares).	
67	Marshall, Victor Alexander Ernest, B.A. . .	Headingley House.
66	Marshall, R. D. . .	Cookridge Hall.
68	Nunneley, J. A., M.B. .	22, Park Place.
69	Rhodes, John . . .	Potternewton House.
70	Shepherd, John . .	Beech Grove House, Tadcaster.
77*	Smith, John Metcalfe (Trustees of)	
32	Smith, Henry Stooks .	Headingley.
71	Tatham, George . .	Springfield Mount.
72	Teale, Thomas Greenwood	Bentley House, Meanwood.
73	Teale, Mrs . . .	St. James' Lodge.
43	Tennant, Robert, M.P. .	Scarcroft Lodge, Shadwell.
74	Tottie, John William .	Coniston Hall, Bell Busk, near Skipton.
54	Waite, James Butler .	Belvidere House, New Leeds.
75	Walker, Edward . .	15, Springfield Mount.
76	Ward, William Sykes, F.C.S. . . .	Denison Hall, Hanover Square.
53	Whiteley, William .	Butt's Cottage, Armley.
78*	Wilson, Richard Bassett (Trustees of).	
12	Wilson, Rev. Benjamin .	Bank House, Mirfield.

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WITH AN ANNUAL SUBSCRIPTION OF ONE GUINEA.

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32	Atkinson, Edward, F.L.S., F.Z.S. . . .	Eldon House, Woodhouse Lane.
116	Baines, Frederick . .	Weetwood Lodge.
2	Balme, E. B. Wheatley .	Cote Wall, Mirfield.
95,-7 99, 100 *	Beckett, William, Trustees of (5 shares).	
15	Bilbrough, Joseph Brooks	15, Beech Grove Terrace.
3	Birchall, Edward . .	Inglemoor House, Moorland Road.

4	Boothroyd, W. . .	Grove Mill, Headingley.
88	Boswell, J. J. . . .	Althorp Villa, Spencer Place, New Leeds.
33-4, 84	Brown, S. J. (3 shares) (P)	Loftus Hill, near Knaresborough.
5-6	Brown, William (2 shares)	Bardon Grange, Weetwood.
7	Buckton, George . .	Roundhay.
89	Buckton, Joshua . .	Broomhill, Moor-Allerton.
113	Burkill, Isaac Henry .	Chapeltown.
90	Butler, J. O. . . .	The Abbey House, Kirkstall.
8	Chadwick, Charles, M.D., D.C.L., F.R.C.P.	
9	Chadwick, William .	Arksey, Doncaster.
10	Cliff, Joseph . . .	Wortley.
14	Conyers, W. H. . .	Ilkley.
12, 13*	Cooper, W. J. (2 shares).	
45	Craven, John . . .	3, Beech Grove Terrace.
98	Craven, Joseph . .	Clifton House, Beeston Hill.
77	Crofts, John . . .	Adel.
17	Curwood, Capel Augustus	Cliff House.
18*	Donisthorpe, G. E.	
19	Fairbairn, Sir Andrew M.A. . . .	Goldsborough Hall, Knaresborough.
20	Farrer, James . .	Ingleborough House, Clapham, near Lancaster.
105	Ferguson, William .	Ridge House, Woodhouse Lane.
21	Filliter, Edward, M. Inst. C.E., F.G.S. . .	West Mount, Clarendon Road.
87	Gott, Rev. John, D.D. (P)	Woodsley House.
101-110, 114-15	Gott, Wm. Ewart (P) (12 shares) . .	Armley House.
22	Hall, Thomas . .	Heath Cottage, Moor-Allerton.
23	Hargrave, James . .	Willaston House, Harrogate.
	*Hargreaves, S. B.	
16	Harvey, William . .	Bellevue Terrace.
24	Henderson, Rev. W. G., D.C.L. . . .	Grammar School,
44	Hepper, Joseph Henry.	Balks House, Wortley.
26	Hey, Samuel, F.R.C.S. .	Headingley.

117	Howarth, Rev. William Lee	Elmwood House.
36	Hudson, Henry . .	Oakwood, Roundhay.
37	Hudson, Robert John .	Moorville, Burley-in-Wharfedale.
52	Ingham, Charles Alfred .	Belmont, Chorley Lane.
38	Ingham, Henry Constantine . . .	23, Lyddon Terrace.
39	Jowitt, Robert Benson .	Elmhurst, Potternewton.
40	Joy, Walker . . .	3½, Queen Square.
41	Kennedy, Thomas Stuart	Meanwood.
43	Kitson, James . .	Elmete Hall, Roundhay.
46	Kitson, J. Hawthorne .	Hyde Terrace.
47	Kitson, James, Jun. .	Spring Bank, Headingley.
48	Kitson, Frederick William	Burley, near Leeds.
50	Leather, J. T. . .	Leventhorpe Hall.
91	Ludolf, Herman . .	Headingley.
53	Lupton, Arthur . .	Headingley.
54	Lupton, Joseph . .	The Elms, Chapel-Allerton.
55	Lupton, John . .	Moorlands, Headingley.
56	Lupton, Darnton . .	The Harehills, Roundhay Road.
57	Lupton, Francis Martineau, M.A. . .	Wellington Street.
58	March, Joseph Ogden .	Beech Grove House, Woodhouse Lane.
94	Malcolm, John Cooper .	New Leeds.
59	Margerison, J. L. . .	4, Porchester Gate, Bayswater Road, London.
25*	Marsden, H. R.	
60	Marshall, Thomas, M.A.	Highfield, Chapel-Allerton.
61	Marshall, John, M.A. .	Headingley Lodge.
62	Marshall, Stephen Albert	Weetwood.
27	Maude, Edmund . .	Middleton Lodge, Beeston.
63	Meggeson, George . .	6, Cromer Terrace.
29*	Milner, Henry B. W. .	
64	Nickols, Richard . .	West Derby, Liverpool.
65, 66	Nicholson, Albert H. (2 shares) . . .	Woodside, Belvedere, Kent.
7	North, John . . .	East Parade.

67	Nunneley, A. G. . .	9, Beech Grove Terrace.
68	Oxley, Henry . .	Weetwood.
28	Passavant, P. W. . .	De la Haye House, Chapeltown Rd.
11	Price, William Nicholson	7, East Parade.
30	Prichard, W. . . .	Bishopgate Street.
93	Ralph, John . . .	8, Brunswick Place.
69	Reynolds, Richard, F.C.S.	Cliff Lodge, Hyde Park.
112	Sagar-Musgrave, J. M. .	Red Hall, Shadwell.
92	Scattergood, Thomas .	41, Park Square.
118	Schofield, J. C. . .	Pendleton House, Spencer Place, New Leeds.
119	Schunck, Edward. .	Adel
51, 121	Stansfeld, T. W. (2 shares)	Weetwood Grove.
70	Stewart, G. M. . .	13, Queen Square.
71*	Taylor, George . .	Buckingham House, Headingley.
72*	Taylor, Samuel.	
73	Teale, T. Pridgin, M.A., F.R.C.S. . . .	North Grange, Headingley.
74	Teasdale, Washington .	Rosehurst, Headingley.
75	Tennant, Robert, M.P. (P)	Scarcroft Lodge, Shadwell.
76	Tennant, Thomas . .	21, Blenheim Terrace.
78	Tetley, F. W. . .	Fox Hill, Weetwood.
49	Thorp, John Hall . .	Broomfield, Headingley.
79	Turner, Richard Bickerton	Bank of England, South Parade.
80	Wailes, William . .	Harrogate.
111	Watson, William . .	Elmwood, Harrogate.
81, 82*	Whitaker, John (2 shares).	
42	Whiting, John . .	Regent Villas, Headingley.
83	Wicksteed Joseph Hartley	3, Eldon Terrace, Woodhouse Lane.
31	Wilkinson, William .	St. Mary's Mount, Newton Hill.
85	Wilson, John . . .	Seacroft Hall.
86*	Wilson, Thomas, M.A. .	
35	Wood, Richard . .	Newton Villa, Potternewton.

ORDINARY MEMBERS.

WITH AN ANNUAL SUBSCRIPTION OF TWO GUINEAS.

Armistead, Joseph John . .	Chapeltown.
Atkinson, J. H.	14, East Parade.

Buckton, Joseph	Moorland Terrace.
Bulmer, John	4, Winfield Mount, Potternewton Lane.
Cadman, William . . .	Roundhay.
Croft, Samuel	Armley.
Garlick, William . . .	6, Hyde Terrace.
Hewitt, E. W.	Harrogate.
Ikin, Joshua Ingham, F.R.C.S. .	19, Park Place.
Martin, Samuel Dickinson . .	Beech Grove, Harrogate.
Ramskill, Josiah, M.R.C.S. .	13, Meadow Lane.
Stratten, Rev. J. R. . . .	Park Square.
Sykes, Henry Marshall . .	Roundhay

NEW ORDINARY MEMBERS.

WITH AN ANNUAL SUBSCRIPTION OF ONE GUINEA.

Allbutt, T. Clifford, M.A., M.D., F.S.A., F.L.S. . . .	Lyddon House, Virginia Road.
Baily, Walter, M.A. . . .	24, Hyde Terrace.
Baines, Edward Manwaring .	6, Ashwood Terrace, Headingley Hill.
Barr, Frederick Horatio . .	Mount View, Headingley Lane.
Barwick, J. M.	Glen View, Shipley.
Benson, John	5, Beech Grove Terrace
Best, William	18, Lyddon Terrace.
Bolland, W. T.	Hunslet Lane.
*Botterill, John.	
Bousfield, Charles Edward . .	St. Mary's Mount.
Briggs, Riley	Springfield Mount.
Carbutt, E. H.	Kingston Terrace.
Carter, Robert Meek . . .	Woodhouse Lane.
Corson, George	Far Headingley.
Dawson, Edwin	Cookridge.
Denny, T. G.	18, Midland Road, Hyde Park.
Dixon, J. W.	13, Vernon Road.
Downs, T. W. A. . . .	12, Blenheim Square.
Eddison, Frederick . . .	The Manor, Adel.
Eddison, Robert William . .	Headingley.
Firth, William	Burley Wood House.

Ford, J. Rawlinson . . .	Adel Grange.
Ford, T. B. P.	Ilkley.
Gascoigne, F. C. Trench . .	Parlington Park, near Garforth.
*Greenwood, Thomas . . .	
Hargrave, John	St. Ann's Lodge, Burley, near Leeds.
Hepper, John	Clareville, Headingley.
Holt, Henry Percy, C.E., F.G.S., &c.	Cavendish Road.
Holt, Joseph (P). . . .	Wedderburn House, Harrogate.
Illingworth, William . .	Armley.
Ingham, Tom	Belmont, Chorley Lane.
*Irwin, Edward.	
Irwell, Julius	Highfield House, Headingley.
Jackson, Rev. Edward, M.A. .	9, Brunswick Place, North Street.
*Jackson, William S.	
Kempe, Arthur	29, Brunswick Terrace.
Kemplay, Miss	St. John's Place.
Lawson, Thomas . . .	Potternewton.
Lawson, John	Beech Grove Hall.
Leather, J. W.	
Ledgard, Mrs.	Eller Close, Roundhay.
Lupton, Joseph	Armley.
Manning, H. J. . . .	Manning, Wardle, & Co., Hunslet.
McCheane, Rev. J. H., M.A. .	Trinity Parsonage, Hyde Terrace.
March, George	Oaklands, Scarcroft.
Middleton, John William . .	Mount Terrace, Potternewton.
Morley, Herbert Ogle . .	20, Victoria Terrace.
Myers, William Beswick . .	13, Park Square.
Myers, W. C.	Grove House, Roundhay.
Nelson, Henry	St. John's Cottage, St. John's Road.
Nunneley, Thomas . . .	9, Beech Grove Terrace.
Nussey, George Henry . .	St. Ann's Lane, Burley, near Leeds.
Nussey, Obadiah . . .	Morley House, Headingley.
Nussey, Thomas . . .	Virginia House, Headingley Hill.
Nussey, Samuel Leathley . .	Potternewton Hall.
Nussey, Peter	Spring Ville, Shaw Lane, Headingley.

*Payne R. E.	
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Ramsbotham, S. H., M.D.	16, Park Place.
Raynar, John	37, Lyddon Terrace.
Read, Miss	Chapel-Allerton
*Riley, Thomas.	
Robinson, R. H.	Kirkstall Hall.
Sharpe, Miss	21, Victoria Place, Camp Road.
*Simpson, R. W.	
Smith, William Farrar	Hope Villa, Woodhouse Lane.
Somers, Francis	Fountain Terrace.
Stables, James	Horsforth.
Stead, G. A.	Ashwood Villas, Headingley.
*Talbot, George.	
Temple, Rev. Henry, M.A.	St. John's Vicarage, Woodhouse Lane.
*Tennant, Joseph Mason.	
Titley, Anthony	Manor House, Victoria Grove, Headingley.
Titley, T. A.	Gledhow.
Tottie, J. W. (P)	Coniston Hall, Bell Busk.
Townsley, Richard	6, Springfield Mount.
*Wade, John.	
Walker, H. B.	Headingley Hill.
Whiteley, Thomas	Blenheim Square.
Wilson, J. J.	Newton Grove.

ANNUAL SUBSCRIBERS OF ONE GUINEA.

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Armistead, Edwin	Albion Street.
Asquith, John Robert	Bond Place.
Atkinson, G. P.	Pontefract.
Atkinson, Miss	Clarendon Road.
Atkinson, Law	Clarendon Road.
Baily, J. S.	4, Blenheim Square.
Barran, Charles	Chapel-Allerton Hall.
Barran, John, Jun.	St. Mary's Mount, Newton Hill.
Barran, A.	Chapel-Allerton Hall.

Bartholomew, W. H., C.E.	Ridge Way House.
Battye, R. C.	Newton Grove.
Bedford, James	Woodhouse Cliff.
Beverley, Mrs.	Grosvenor Terrace, Headingley.
Beverley, Robert	Woodsley Terrace.
Beverley, W. A.	Spring Road, Headingley.
Bickerdike, Rev. John, M.A.	St. Mary's Vicarage, Beckett Street, Burmantofts.
Birchall, Oswald	Kirkstall Grove.
Braithwaite, James, M.D.	Clarendon Road.
Braithwaite, Richard Hale	Do.
Browne, J. C.	48, Briggate.
Bruce, William	Moorland Terrace.
Buckley, J. C.	10, Blenheim Terrace.
Buckton, Richard	Wheatfield Lodge, Headingley.
Bulmer, Charles	Blenheim Lodge.
Burton, F. H.	4, Woodsley Terrace.
Burton, J. W.	4, Woodsley Terrace.
Butler, Edmund	Riseholme, Horsforth.
Byles, Rev. A. Holden, B.A.	7, Richmond Road, Headingley.
Calvert, John P.	6, Springfield Place.
Campbell, Archibald	23, Hyde Terrace.
Chatwin, E. W.	1, Willow Grove Road.
Cheetham, W.	Woodbottom Cottage, Horsforth.
Clare, W. M.D.	Park Square.
Clark, Miss	S. L. Nussey, Esq., Potternewton Hall.
Clay, J. W.	16, Warwick Place.
Coates, James Irwin, F.R.A.S.	Southend, Headingley.
Conder, Rev. E. R.	1, Newton Grove.
Conyers, Joseph	Castle Grove, Headingley.
Cooke, William	Moorfield House, Moor-Allerton.
Cooper, G. I.	Woodhouse Chemical Works.
Craig, Robert	98, Briggate.
Crampton, W. T.	Woodland View, Chapeltown.
Crawford, James	Chapel-Allerton.
Crawford, J. W.	Newton Lane.
Crosley, William	33, Mount Preston.

Croysdale, John	4, Beech Grove Terrace.
Cuthbert, John	163, Woodhouse Lane.
Davis, Edward	Milton Lodge, Far Headingley.
Dawson, William	Larchfield Mills, Hunslet Lane.
Dixon, Henry	6, De Grey Road.
Dolan, John Cass	North Hill Road, Headingley.
Douglas, Dr.	7, South Parade.
Douglas, John	Beech Grove, Oulton.
Dufton, Arthur Wellesley	74, Springfield Place.
Dunfield, James	2, Victoria Terrace, Far Headingley.
Eagland, W. H.	Lyddon Terrace.
Emsley, G. A.	Clarendon Mount.
Fairley, Thomas, F.R.S.E.	8, Newton Grove.
Falcon, Thomas	Pudsey.
Farrar, Abraham, Jun.	115, Hyde Park Road.
Fenwick, Thomas	Allerton Hill, Chapel-Allerton.
Ferns, Francis	Cliff Road.
Foster, A. S.	Garforth.
Foster, George	Osmondthorpe.
Fox, James, C.E.	Woodlands, Horsforth.
Fraser, John	Grove House, Headingley.
Goldie, George, M.D.	Fitzroy Villa, Crimble Street.
Goodall, Charles	Francis Street, New Leeds.
Goodier, Rev. J. H.	St. Jude's, Hunslet Lane.
Granger, Charles	Newton Grove, Chapeltown Road.
Green, Prof., M.A.	11, Hyde Park Terrace.
Greene, John	Whinmoor, near Seacroft.
Greenwood, Frederick	School of Medicine, Park Street.
Greenwood, W. F.	Park Villas, Hyde Park Road.
Haigh, Rev. C. D., M.A.	3, Woodsley Terrace.
Hall, Frederick	North Street.
Hall, William	1, Hillary Place.
Hallilay, John	Burley Road.
Hamilton, R. W.	Cardigan Villas, Shaw Lane, Headingley.
Harding, T. W.	Hillary Lodge, Cavendish Road.
Hargrave, Charles	Oxley Hill, Moortown.

Harrison, Rev. F. L. . . .	Vicarage, Burley.
Harrison, R. B.	6, Richmond Road, Headingley.
Harvey, Thomas . . .	Ashwood, Headingley Hill.
Hassé, A. B.	31, Commercial Street
Hatch, Samuel Charles . .	Laurel Bank, Shaw Lane, Headingley.
Headland, Thomas . . .	1, Highfield Terrace, New Leeds.
Heald, Alfred William . .	8, Springfield Mount.
Hebblethwaite, A. R. . .	12, Blenheim Terrace.
Hebblethwaite, W. J. . .	Moor Allerton.
Hewson, Charles Thomas . .	Harehills.
Hezmalhalch, Joseph . . .	Thorner.
Hill, John William, M.A. . .	Lynton Villa, Mount Preston.
Hindle, J. E.	North Grange, Horsforth.
Hirst, J. A.	Adel.
Hobson, Frederick . . .	49, Briggate.
Holmes, John	Methley.
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PRINTED AT THE OFFICE OF THE YORKSHIRE POST, LEEDS.

THE

FIFTY-SEVENTH REPORT

OF

THE COUNCIL

OF THE

LEEDS

PHILOSOPHICAL & LITERARY

SOCIETY,

AT THE

CLOSE OF THE SESSION 1876-77.

Read at the Annual Meeting, May 1st, 1877.

LEEDS:
PRINTED AT THE OFFICE OF THE YORKSHIRE POST.
—
MDCCCLXXVII.

IMPORTANT RULE

RESPECTING THE PROPERTY OF THE SOCIETY,

PASSED OCTOBER 8TH, 1860.

That in the event of a dissolution of this Society, its Property and Effects, whether real or personal, shall not be disposed of for the personal benefit of the Members, but shall be appropriated in such manner for the advancement of Science, Literature, or Art, in the town of Leeds, as shall be determined by a majority of the Members at an extraordinary Meeting to be convened for that purpose. But that no dissolution of the Society shall take place without the consent in writing of a majority holding not less than two-thirds of the Proprietary Shares.

FORM OF A BEQUEST TO THE SOCIETY.

Every person desirous of bequeathing to the Society any sum of Money, Specimens, Books, Instruments, or other Property, is requested to make use of the following Form :—

I give and bequeath to the Trustees for the time being of the Society established at Leeds, called "THE LEEDS PHILOSOPHICAL AND LITERARY SOCIETY," *for the use of the said Society, the sum of* , *to be paid out of such part of my personal Estate as I may legally charge therewith.* [Or here enumerate the Effects or Property intended to be bequeathed]. *And I direct that the Receipt of the Treasurer of the said Society for the time being, shall be an effectual discharge to my Executors for the said Legacy.*

REPORT OF THE COUNCIL

AT THE CLOSE OF THE

FIFTY-SEVENTH SESSION.

The Council have the gratification of reporting that the session which has just terminated has been marked throughout by life and energy, which have fully sustained the former reputation of the Leeds Philosophical and Literary Society; and it is believed that the fifty-seventh session will be remembered as one during which much useful work has been done.

There are two points, however, in which improvement is desirable. The Society cannot be congratulated this year either on an increase of numbers or an improved financial position. The result in each case is no doubt in part attributable to the depression of trade, which has affected this town as well as other parts of the kingdom; but the Council are of opinion that the lectures alone might have been expected to attract a larger number of Subscribers than those who have availed themselves of the advantages of the Society during the year.

The numbers, as compared with those of the previous year, stand thus:—

	1875-6.	1876-7.
Original Proprietary Members (78 shares)	71	71
New Proprietary Members (120 shares)	97	101
Ordinary Members	13	13
New Ordinary Members	86	82
Annual Subscribers of £1 1s.	247	221
Annual Subscribers of 7s. 6d.	216	221
Total	730	709

Cases have occurred of gentlemen being classed among the Subscribers of 7s. 6d. whose names ought to have appeared in the list of Subscribers of a guinea, and as there may be some misapprehension as to the rule on this subject, the Council desire to point out that the only gentlemen entitled to attend the Meetings of the Society for the smaller payment are those belonging to the family of a Member or of an Annual Subscriber of £1 1s., who reside in the same house and who are under 21 years of age. This restriction as to age does not apply to ladies.

It has been a source of encouragement to the Council to find that parents are becoming more sensible of the educational value of the Lectures and Museum, and that a larger number of the children of Members and Subscribers are availing themselves of the advantages offered under the above-mentioned rule.

The cash account, which will be found appended to this Report, shows a balance against the Society of £106 13s. 9d. An important item of annual expenditure is the sum paid for Lecturers' fees. It would, of course, be very easy to bring this amount down to a much smaller figure, but the Council believe that the important place which the lectures occupy among the proceedings of the Society demands that the best available provision should be made for them.

The handsome donation of £10 which Mr. Thos. Emsley, of Burley-in-Wharfedale, has now for several years contributed to the funds of the Society, has been renewed this year.

In the large Zoological Room a new Gallery has been erected, at a cost of upwards of £160. It was deemed advisable to endeavour to raise the funds needed for this

purpose by means of special subscriptions, and a list was accordingly opened, which up to the present time has produced £112 2s. Particulars of the donations are given in a separate account below; and it is hoped that the mere mention of the fact that nearly £60 has still to be raised towards the cost of this gallery will suffice to bring in the requisite amount from the Members and Subscribers to the Society who recognise the importance of the object. In addition to the contract price, named above, for the construction of the gallery, at least £100 should be raised towards the cost of wall-cases.

The following is a list of the Lectures delivered and Papers read before the Society during the session:—

1. Opening Address, with a Paper on "A Curious Defect in Modern Education." The President (Rev. J. H. McCheane, M.A.) *Oct. 17th*, 1876.
2. "Siberia in Europe, being Impressions of the Samoyedes." Edward Rae, F.R.G.S. *Read Oct. 31st*, 1876.
3. "The Extinct Animals of North America." W. H. Flower, F.R.S., Hunterian Professor of Comparative Anatomy, Royal College of Surgeons. *Read Nov. 7th*, 1876.
4. "The Laws of Motion, with Experimental Illustrations." R. S. Ball, LL.D., F.R.S., Professor of Astronomy, University of Dublin. *Read Nov. 21st*, 1876.
5. The Conversazione. *Nov. 28th*, 1876.
6. "The Later Geological Periods in Europe, India, South Africa, and Australia." P. M. Duncan, M.D., F.R.S., Professor of Geology, King's College, London; President of the Geological Society. *Read Dec. 5th*, 1876.
7. "The Future Work of the English Universities." J. G. Fitch, M.A. *Read Dec. 19th*, 1876.
8. "Travels in Africa." Commander Cameron, R.N., C.B. *Read Jan. 4th*, 1877.

9, 10. Christmas Lectures on Electricity, with Experiments. W. F. Barrett, F.R.S.E., Professor of Physics, Royal College of Science, Dublin. *Jan. 5th and 6th*, 1877.

11. "A Personal Narrative of the Recent Arctic Expedition." Captain A. H. Markham, R.N., C.B. *Read Jan. 16th*, 1877.
12. "Dangers to Health in our own Houses." T. Pridgin Teale, M.A., F.R.C.S. *Read Jan. 23rd*, 1877.
13. "The Life and Work of Professor Sedgwick." T. Mc K. Hughes, M.A., Woodwardian Professor of Geology, Cambridge, *Read Feb. 6th*, 1877.
14. "Olympia and Greek Athletics: an Account of Ancient Usages and Recent Discoveries." Sidney Colvin, M.A., Slade Professor of Fine Art, Cambridge. *Read Feb. 20th*, 1877.
15. "The Paston Letters." J. C. Morison, M.A. *Read Mar. 6th*, 1877.
16. "The Life and Poetry of Shelley." J. R. Mozley, M.A. *Read Mar. 13th*, 1877.
17. "Illustrations of the Months and Seasons in Art, with Tracings, Drawings, &c." James Fowler, F.S.A. *Read Mar. 27th*, 1877.
18. "The Moral Teaching of an Early Hindu Reformer." Henry Bowers, late Government Inspector of Schools in Madras. *Read April 3rd*, 1877.
19. "Illustrations of the Laws that regulate Muscular Work and Fatigue." Rev. Samuel Haughton, M.D., F.R.S., Professor of Geology, University of Dublin. *Read April 17th*, 1877.

The average attendance at the general meetings of the Society has been much larger than during some preceding sessions. On several occasions, indeed, the Lecture Hall was filled to its utmost capacity, notably on the 4th and 16th January, when Commander Cameron and Captain Markham gave an account of their travels. The Council have learned with satisfaction that the important lecture on the sanitary arrangements of dwellings, by our fellow-townsman, Mr. T. Pridgin Teale, has been repeated on several occasions to audiences composed chiefly of the working classes, and that the substance of it has been printed for general publication. The attendance at the

Christmas lectures for juveniles, by Professor Barrett, and the interest exhibited in them, were such as to justify a similar provision being made in succeeding years for the children of Members and Subscribers.

The necessity for presenting the sessional card at the door, before admission can be granted to the lectures, must again be mentioned, as Members have occasionally shown a disposition to treat such a regulation as irksome if not obsolete. It is clearly, however, in the interests of the Society that such a rule should be duly observed, and the doorkeeper has received strict injunctions to enforce it.

The Conversazione was held on the 28th November, 1876, and was attended by a large number of Members and Subscribers, and by more visitors than usual. The proceedings comprised a short introductory address by the President, the Rev. J. H. McCheane, M.A., and Addresses, with illustrative experiments, on "The Constitution of Matter," by Professor A. W. Rücker, M.A. (who treated of the evidence of the radiometer); and Professor T. E. Thorpe, Ph.D., F.R.S., (who dealt with that of the spectroscope). During the evening there was also an exhibition by the oxy-hydrogen light of original photographs of places in India visited by the Prince of Wales. Among the objects exhibited were steel shells, standard cylindrical gauges, and hexagonal surface plates, &c., exhibited by Sir Joseph Whitworth; Steinheil's spectroscope, Oersted's apparatus for showing the compressibility of liquids, and Despretz's apparatus for illustrating the condensibility of gases, by Professor Thorpe; models of ordnance and electrical apparatus, by Mr. L. J. Crossley, of Halifax; earthwork measuring machine, by Mr. W. H.

Barlow; engineering appliances, by Mr. H. P. Holt, C.E.; Talleron's spherometer and new optical apparatus, by Professor Rücker; mechanical models, by Professor Armstrong; Kay's railway carriage door fastener, by the Inventor; the "Sun" platen printing machine, and the type writer, shown at work, the former by Messrs. Greenwood & Batley, and the latter by Messrs. Pearson and Co.; dust figures, by Mr. J. Monckman; Zuccato's papyrograph, by Messrs. Inchbold & Beck; illustrations of painting on china, by Mons. and Mdme. Leprince; artistic work in glass, &c., by Mr. Wm. Hodgson; and wax flowers and ornamental leather work, by Miss Shipway. There was also a good exhibition of microscopes. The library, staircase, and the zoological and geological rooms were hung with oil paintings, water-colour drawings, and photographs, which formed, as usual, one of the most attractive features of the meeting. Among the contributors to this part of the exhibition were Mr. Henry Oxley, Mr. Wm. Cheetham, Mr. John C. Taylor, Mr. John Rhodes, Mr. Sagar-Musgrave, Mr. T. R. Harding, Mr. T. W. Harding, Mr. Roberts, Mr. Wagstaff, Mr. Jas. Kitson, jun., Mr. J. H. Carr, Messrs. Newton Bros., Mr. J. A. Hirst, and Mr. A. Hassé.

Allusion was made in last year's report to the invitation which had been sent from the Town Council to the British Association for the Advancement of Science, to fix upon Leeds as the place for the meeting of 1878, and the acceptance of that invitation was then described as not improbable. With the view of furthering such an arrangement a deputation from this Society was sent to the meeting of the Association at Glasgow last autumn,

but it was finally decided that the meeting in 1878 should be held in Dublin.

In the month of September, Mr. L. C. Miall, F.G.S., whose valuable services as general curator of the museum the Society has been so fortunate as to possess during the last six years, retired from the post of secretary, to which Mr. W. F. Husband was appointed. By this arrangement Mr. Miall was enabled to accept the appointment of Professor of Biology in the Yorkshire College of Science, while retaining his position as curator of the Society's museum. The Council deem this a suitable occasion for acknowledging the very efficient manner in which the general affairs of the Society have been conducted by Mr. Miall, and they especially recognise that the educational value of the museum has been greatly enhanced by the intelligence and care with which the various objects in it have been arranged by him. In consequence of this redistribution of offices, the apartment which was formerly used as a gentleman's cloak room has been fitted up as the curator's room, having direct communication with the preparing-room and upper floor of the museum.

In addition to the alterations in the museum alluded to above, an important change of system has been made in the arrangement of the objects in it.

The glazed cases have long been found unequal to the wants of the collections. In an institution which endeavours to supply instruction to the public in general, and not merely to occasional students, it seems necessary that the range of subjects should be wide. The Leeds Museum, comprising as it does antiquities, ethnology, zoology in all its branches, technology, rocks, minerals, and fossils, is perhaps over-ambitious, and may be

forced at some future time to restrict its comprehensiveness. Much may meanwhile be done to find room for increasing material without overcrowding. It would be in all respects beneficial to separate more and more typical and easily understood examples from the obscurer and minuter objects, valuable only to the close observer. An obvious way of effecting this separation would be to place a large proportion of the collections in cabinets, reserving wall cases and tables for an index collection of selected specimens. The present state of the museum permits an almost indefinite addition to our storage, though not to display cases, and want of funds has been the sole objection to pressing the purchase of cabinets during the past year. It is hoped that the officers of the Society will hereafter be able to adopt a method which promises relief from a daily-increasing pressure, together with greater facilities for special students, and which will attain these important results without diminishing the interest of the museum to chance visitors.

The new gallery, constructed upon the wall-cases in the large Zoological Room, will give a most important addition of space. It is much to be desired that the fittings implied in this alteration should be supplied early, so that the fishes, amphibia, reptiles, and British birds may be satisfactorily placed. The extension by means of a new gallery has rendered possible a change which the curators have long desired. It will be remembered that the upper rooms, in particular the large Zoological Room, have been occupied by objects too miscellaneous for any rational classification. Quadrupeds, insects, shells, corals, models of mountains and lakes, and other heterogeneous matter, have been placed according to size and shape

upon the floor. We are now enabled by the prospect of additional accommodation to reform much of this confusion, and to adopt an intelligible and nearly uniform plan. The curators have made use of this occasion to introduce a yet more considerable alteration. They have resolved to reduce the divisions of "Recent" and "Fossil" from a primary to a secondary rank, so that the natural history collections of all kinds will henceforth follow in the main the systematic classification of the naturalist, while the details only of the arrangement will rest upon the state of preservation, the size, or shape of the specimens. For the new method several advantages may be claimed. It gives a truer notion of the relations of forms of life—past and present. No reason less conclusive than that of strong practical convenience could justify us in drawing a primary line between those species which have happened to become extinct and those which still survive. Such a division is particularly inappropriate in the case of the Pleistocene fauna, which yields the bulk of our fossil mammalia, but of which a large proportion occurs also in the list of recent species. We think, further, that practical convenience will be found on the same side as theoretical fitness. The student, whether methodical or occasional, must be constantly comparing like things, and it is fatal to his objects that a fossil rhinoceros or elephant, for example, should be carried away to another room, on the mere ground of its occurrence in an ancient deposit, and there placed side by side with the scanty and inconsecutive remains of other fossil animals. Direct comparison with a perfect rhinoceros or elephant is by far the most important opportunity which a museum can offer, and this is withheld by the customary

arrangement. It will be found that the groups as now placed in our museum will coincide fairly well with the fields of study selected by the specialist. Students of such groups as fishes, crustacea or foraminifera, recent and fossil, are growing in number, while no well-advised naturalist now selects a fossil group for investigation apart from its recent allies. The current text-books and monographs, such as Huxley's "Introduction to the Classification of Animals," Peters, Carus, and Gerstaecker's "Zoologie," Woodward's "Mollusca," Davidson's "Brachiopoda," Owen's "Comparative Anatomy," and a score of others, follow the plan now recommended. It may, lastly, be urged that the increasing use of the museum for teaching purposes in connection with the Yorkshire College renders it necessary to replace the somewhat hap-hazard arrangement of the past by the classification almost universally adopted by teachers. It would be too much to expect that an experiment tried on the limited scale which our present means permit should turn out in all respects satisfactory, but the curators have no misgiving as to the general improvement which will result from the changes now in progress. New table cases and stands have been required for large mammalia hitherto mounted on the tops of the wall-cases and for fossil mammalia removed from other parts of the museum. These have been procured at small cost by the conversion of old and worn-out cases. Much time and some further expense will be required to complete the rearrangement, which will not, however, we hope, be protracted beyond the next annual meeting.

The Council have to thank Dr. Clifford Allbutt, hon. curator in zoology, for an extensive series of British

beetles, and for a large number of invertebrate types, many of which are dissections which were prepared expressly for this museum by Mr. Fritsch, of Prague. Among the contributions of fossils are an important collection of nummulites, from Mr. H. B. Brady, F.R.S.; and Rhætic fossils from the Severn, presented by Mr. John Brigg. Both are supplementary to former gifts of the same kind. We have received from Messrs. Woods and J. T. Atkinson, acting on behalf of the newly-formed Natural History Society of Selby, two of the hollowed tree trunks containing human skeletons lately found at Church Hill, Selby. The hazel rods buried with the bodies seem to refer the interment to the English period, but the chronological indications are very slight. Mr. Rooke Pennington, of Bolton, has sent a valuable collection of mammalian remains, found at Windy Knoll, Castleton, and promises a collection of flint implements and bones from the newly-discovered caves of Cresswell Crags, Derbyshire.

The full list of donations appended to this report will show that the acquisitions of the past year are numerous and valuable. We find no diminution either in the liberality or the energy of the friends of the Society, and our chief anxiety is that the capacity of the museum may keep pace with the steady increase of the collections.

The industrial museum has been cleaned and re-arranged during the year. A new classification has been introduced, and printed labels have been supplied throughout.

The number of admissions to the museum during the year was 37,383 as against 51,112 in 1875-6. In that session, however, the admissions were raised to an

extraordinary figure by the circumstance of the Yorkshire Exhibition bringing to Leeds large numbers of strangers throughout the summer.

The Council have seen with much satisfaction the efforts made by the University Extension Committee during the past three years, under the auspices of the University of Cambridge, to promote literary education in this town. The object has in some measure been aided by this Society, by granting the use of the hall for the lectures at a reduced charge. In the same way the Council is pleased to think that the work of the Yorkshire College of Science has been facilitated, as various courses of lectures by Professor Miall have been delivered in the Society's hall, and it is believed that the museum has contributed in a very important degree to the success and practical value of those lectures. The growing importance of the Yorkshire College has been watched with considerable interest by the Council, and the decision which has recently been made to include literature as well as science in the curriculum has brought the college completely within the scope and sympathies of the Society.

The following changes have occurred in the personal constitution of the Council during the year :—Mr. W. Baily, M.A., and Mr. Sydney Lupton, M.A., have resigned office in consequence of leaving the town, and Mr. E. Filliter, M. Inst. C.E., has done the same on account of the pressure of other engagements. Prof. A. W. Rücker, M.A., has been elected in place of Mr. Baily as an honorary secretary, Prof. A. H. Green, M.A., in place of Mr. Filliter as curator in geology, and Prof. T. E. Thorpe, F.R.S., as a member of Council, in place of Mr. S. Lupton.

Upon the recommendation of the Council, a general meeting of the Society elected the following gentlemen as honorary members :—Mr. Henry Bowman Brady, F.R.S., of Gateshead, one of the highest authorities upon the foraminifera, and a frequent benefactor of the Society's museum, in which his interest commenced when a resident in Leeds for several years; and Mr. Clements R. Markham, C.B., F.R.S., editor of the Journal of the Royal Geographical Society, and well known for his personal narratives of expeditions in Africa and the Arctic Seas.

Summary of Meteorological Observations taken at the Philosophical Hall, Leeds, during the year 1876.

1876.	Mean Temperature.	Mean Height of Barometer.	Total Amount of Rain in Inches.
January...	39·0 Fah.	30·070	0·605
February	41·3 ,,	29·553	2·495
March	41·0 ,,	29·308	3·721
April	47·2 ,,	29·641	2·260
May	51·1 ,,	29·990	0·810
June	59·7 ,,	29·772	2·115
July	65·7 ,,	29·858	1·780
August	63·3 ,,	29·746	1·800
September	55·2 ,,	29·596	3·180
October...	52·7 ,,	29·737	3·210
November	43·5 ,,	29·724	2·910
December	43·0 ,,	29·252	6·460

The mean monthly temperature was 50·2°.

The mean monthly height of the barometer was 29·687 inches.

The total rainfall for the year was 32·346 inches.

The greatest degree of heat, as indicated by the thermometer in the sun, was 129° on August 14th; the greatest in the shade was 92° on August 14th; and minimum 27° on January 9 and 10.

The greatest barometric pressure was on January 15th, being 30·562 inches, the temperature of the mercury being 47°; the least pressure was on December 4th, being 28·303 inches, the temperature of the mercury being 55°.

The greatest fall of rain (during 24 hours) was on October 8th, being 1·360 inches.

Latitude 53° 48′ 20″ N.; longitude, 1° 33′ W. Height of the cistern of the barometer above the mean level of the sea, 137 feet; height of the rain-gauge above the street, 46 feet.

LEEDS PHILOSOPHICAL AND LITERARY SOCIETY.

STATEMENT OF RECEIPTS AND EXPENSES FOR THE YEAR 1876-7.

RECEIPTS.	£	s.	d.	£	s.	d.
To Bankers' Balance				22	0	6
,, 83 New Proprietary Members, at 21/–	87	3	0			
,, 62 New Ordinary Members, at 21/–	65	2	0			
,, 12 Old Ordinary Members, at 42/–	25	4	0			
,, 187 Old Annual Subscribers, at 21/–	196	7	0			
,, 26 New Annual Subscribers, at 21/–	27	6	0			
,, 154 Old Annual Subscribers, at 7/6	57	15	0			
,, 51 New Annual Subscribers, at 7/6	19	2	6			
,, Arrears	1	1	0			
				479	0	6
,, Rents of Cellars	63	0	0			
,, Rents of Lecture Room	106	11	0			
				169	11	0
,, Receipts for the Museum	155	15	3			
,, Receipts for the Conversazione ...	20	15	0			
				176	10	3
,, Sale of Catalogue, &c....	2	4	3			
,, Sundries	8	10	8			
				10	14	11
,, Donation from T. Emsley, Esq. ..	...		..	10	0	0
,, Balance due Bank	...		...	106	13	9
				£974	10	11

DISBURSEMENTS.	£	s.	d.	£	s.	d.
By Due to Curator last year				0	3	0
,, Repairs	79	0	7			
,, Taxes and Rates	2	14	3			
,, Insurance	15	0	0			
,, Coals	17	7	0			
,, Gas	21	13	1			
				135	14	11
,, Salaries—Curator's	200	0	0			
,, Assistant Curator's... ...	54	12	0			
,, Porter's	71	13	0			
,, Secretary's	50	0	0			
				376	5	0
,, Collections—Zoological	24	15	6			
,, Archæological	7	18	3			
,, Library	32	0	6			
				64	14	3
,, Postages	20	11	4			
,, Printing and Advertising	63	14	7			
,, Lectures...	162	10	6			
,, Conversazione	57	19	0			
,, Commission to Collector	12	0	7			
,, Bankers' Commission	2	8	0			
,, Sundries	78	8	6			
				397	12	6
,, Balance in hand	...		...	0	1	3
				£974	10	11

Examined and found correct,
20*th July*, 1877.

FRAS. M. LUPTON, AUDITOR.

LIST OF SUBSCRIPTIONS

TO THE SPECIAL FUND FOR

ERECTING A GALLERY AND PROVIDING WALL-CASES

IN THE MUSEUM.

	£	s.	d.
Mr. S. J. Brown, Loftus Hill	10	10	0
Alderman Barran, M.P.	10	0	0
Mr. W. B. Denison, M.P.	10	0	0
Sir Andrew Fairbairn	10	0	0
Mr. Arthur Marshall	10	0	0
Mr. H. C. Marshall	10	0	0
Mr. Henry Oxley (Treasurer)	10	0	0
Mr. John Rhodes	10	0	0
Mr. W. Aldam	5	0	0
Dr. Clifford Allbutt	5	0	0
Mr. Walter Baily	5	0	0
Mr. Edward Baines	5	0	0
Mr. W. Brown, Weetwood	5	0	0
Mr. E. H. Carbutt	5	0	0
Mr. W. Cooke	5	0	0
Mr. E. Filliter	5	0	0
Alderman Gallsworthy (Mayor)	5	0	0
Mr. W. Garlick	5	0	0
Rev. Dr. Gott	5	0	0
Mr. T. R. Harding	5	0	0
Dr. Heaton	5	0	0
Rev. W. Lee Howarth	5	0	0
Mr. John Jowitt	5	0	0

	£	s.	d.
Mr. T. S. Kennedy	5	0	0
Mr. F. Lupton	5	0	0
Rev. J. H. McCheane (President)	5	0	0
Mr. W. N. Price	5	0	0
Mr. R. Reynolds (Hon. Secretary)	5	0	0
Mr. C. Ryder	5	0	0
Mr. E. Schunck	5	0	0
Mr. T. W. Stansfeld	5	0	0
Mr. T. Pridgin Teale	5	0	0
Mr. J. W. Tottie	5	0	0
Mr. W. Sykes Ward...	5	0	0
Mr. John Wilson, Seacroft	5	0	0
Mr. J. Latimer	3	3	0
Mr. John Marshall	3	0	0
Mr. S. L. Nussey	3	0	0
Mr. Wm. Huggon	2	2	0
Mr. J. I. Ikin	2	2	0
Mrs. Ledgard	2	2	0
Mr. John Hill	1	1	0
Mr. John Holmes	1	1	0
Prof. A. W. Rücker (Hon. Secretary)	1	1	0
Mr. F. Somers	1	1	0
Mr. J. B. Bilbrough	1	0	0
Mr. G. F. Naylor	0	10	6
Total	£236	13	6

August 31*st*, 1877.

LIST OF DONATIONS AND ADDITIONS

TO THE

SOCIETY'S MUSEUM AND LIBRARY,

1876-7.

GEOLOGY AND MINERALOGY.

Block of Scotch Cannel Coal, from Lochore	Samuel A. Adamson.
Coal Measure Shale baked by Diorite, Atherstone; Diorite, Atherstone; Quartzite, Warwickshire Coal-field; Dolerite, Whitwich Colliery, Leicestershire; Earthy Oxide of Manganese, Atherstone; Fossils from Woolwich and Reading Series, Chatham	Prof. A. H. Green, M.A.
Polished Mountain Limestone, from Nidd Stean, near Lofthouse; Mottled Grit, from Bishop Thornton, near Ripon; Magnesian Limestone (fossiliferous), from Wormald Green	Rev. J. S. Tute, B.A., Markington, near Ripon.
Further collection of Rhætic Fossils, from the Bone-bed of Garden Cliff	J. Brigg, F.G.S., Keighley.
Cast of Polyptychodon, from Chalk of Bohemia; Arethusa Koninckii, from Silurian of Bohemia; Collection of Silurian Trilobites, from Bohemia (18 species); Cast of a new Labyrinthodont, from the Gas Coal of Bohemia	Prof. Anton Fritsch, Prag.
Torbanite or Torbane-hill Mineral.....	Rev. W. Willans.
Casts of the following Fossil Fishes, viz.:— Cochliodus contortus (2 specimens), Deltodus sublævis, Streblodus oblongus, Helodus, Gyrolepis, Prognathodus Guntheri.....	The Earl of Enniskillen, Florence Court, Enniskillen, Ireland.
Nummulina intermedia, Hungary; Nummulites Molli, N. Tchichatcheffi and N. Puschi, Hungary; N. Leymeriei and N. Lucasana, Bavaria	H. B. Brady, F.R.S.

Bones of Bison and other Pleistocene Mammalia, from Windy Knoll, Castleton	Rooke Pennington, LL.B., Bolton.
Bones of Hippopotamus, Bison, &c., from Raygill ; Rock Specimens from Auvergne	R. H. Tiddeman, M.A.
A Collection of Red and Coralline Crag Fossils	W. H. Dalton, H.M. Geological Survey.
Carpolithes ovulum, Headon, Isle of Wight	T. Scattergood.

ZOOLOGY AND BOTANY.

Apus productus, Alcyonella fungosa, Plumatella repens, Holopedium gibberum, Branchipus stagnalis	Prof. Anton Fritsch, Prag.
Goatsucker	W. Wilkinson, Newton Hill.
Swan (Cygnus olor)	J. Ray Eddy, Carleton Grange, Skipton.
Eight "Horned Toads" (Phrynosoma cornutum) from Texas	R. H. Wood, Bean Ing Mills, Leeds.
Skin of Marmot.....	Purchased.
Collection of British Birds	Purchased.
Fresh Specimen of Ceratodus Forsteri, Queensland	Purchased.
Larva of Dytiscus, Various stages of growth and sexes of Ants, Larva of Myrmeleon, Blatta germanica, Nepa cinerea, Bostrichus typographus, Chelifer ixoides, Lycosa tarantula, Pycnogonum litorale, Squilla mantis, Branchipus stagnalis, Apus cancriformis, Limnadia tetraceros, Argulus foliaceus, Caligus gracilis, Branchiella Thini, Lernæa branchialis, Sipunculus verrucosus, Borlasia, Bonellia viridis, Strongylus armatus, Trichocephalus dispar, Echinorhynchus gigas, (male and female), Gordius aquaticus, Distoma hepaticum, Diplozoon paradoxum, Cænurus cerebralis, Vermetus gigas, Terebratula vitrea, Boltenia, Botryllus, Pyrosoma atlanta, Holuthuria (dissection), Plumatella repens, Spongilla fluviatilis, Spongia officinalis, Dunstervillia	Dr. Clifford Allbutt.

Bark of Cork Tree from St. Helena	Rev. J. G. Smith, Christ Church Vicarage, Leeds.
Series of Specimens of British Beetles, in great part supplementary to those already in the Society's possession, from the collection of the late Mr. Denny	Dr. Clifford Allbutt.
Curlew	Dr. Heaton.
Skeleton of Salamandra maculata and Carp, Skeleton of the Foot of a Horse, an Ox and a Pig, Larvæ of Pelobates fuscus (2 stages), Salamandra maculata, Proteus anguinus, Petromyzon (2 preparations), Preparations of early stages of Salmon, Injection of Tortoise.....	Purchased.
Colorado Beetle (5 specimens), from Long Branch, New Jersey, N.S.	Dr. Eddison.
Lobster, prepared so as to shew the segments and their appendages	T. W. Stansfeld. J. I. Ikin. Rev. McCheane. T. Scattergood. H. B. Walker.
Locust (Pachytylus cinerascens, Fab.), caught at Armley	Israel Holdsworth, Armley.

ARCHÆOLOGY AND ETHNOLOGY.

Two coffins formed by hollowing tree-trunks, and human skeletons, from early burial-place, Church Hill, Selby.....	Messrs Woods and J. T. Atkinson, Selby.

PUBLICATIONS.

Greenwich Observations (1874)	The Astronomer Royal.
A Paper on the People of the Long Barrow Period (pamphlet) ..... An Address to the Biological Section of the British Association, 1870 ..... Ditto (pamphlet) 1875 ..... The Harveian Oration, 1873	The Author (Prof. Geo. Rolleston.)
Report of the British Association, Bristol (1875)	The Association.
Education and Culture—An Inaugural Address delivered to the Society, by the President—Rev. A. Mackennal, B.A. (pamphlet)	The Leicester Lit. and Phil. Society.

Evidences of Theriodonts in Permian Deposits Elsewhere than in South Africa (pamphlet) ..... Evidence of a Carnivorous Reptile (Cynodraco Major, Ow.) about the size of a Lion, with remarks thereon (pamphlet)	The Author (Prof. Owen, C.B)
On the Mechanics of Glaciers (pamphlet). On the Transformation of Gravity (pamphlet)	The Author, Jas. Croll.
The Anatomist's Instructor and Museum Companion, by F. I. Knox	Ed. Filliter, C.E.
Catalogue of Greek Coins, Sicily ..... Catalogue of Oriental Coins, Vol. II..... Catalogue of Sanscrit and Pali Books in the British Museum ..... Ancient Charters of the British Museum Fac-simile of an Egyptian Hieratic Papyrus of the Reign of Rameses III., now in British Museum	Trustees of the British Museum.
Graham's Chemical and Physical Researches	R. Angus Smith.
Directory of Leeds.....	McCorquodale and Co.
The Yorkshire Lias	Purchased.
Catalogue of the British Hymenoptera in the British Museum, 2nd Ed.	Trustees of the British Museum.
Mineral Map and General Statistics of New South Wales (pamphlet).....	The University, Sydney.
Dun Echt., Observatory Publications, Vol. I., A Summary or Index of the Measurements in the "Stellarium Duplicum et Multiplicum Mensuræ Micrometricæ" by Struve	Lord Lindsay.
Congrès International D'Anthropologie and D'Archéologie Préhistoriques, Vol. 1 and 2 ..... Bibliographie de L'Archéologie Préhistorique de la Suède	J. T. Kinnear, Horsforth Hall.
Experiments on the Maximum Elasticity and Density of Vapours	The Author (Alex. Morton, Glasgow.)
Weather Charts of the Meteorological Office	Purchased.
Atti della R. Accademia dei Lincei ..... Di Giovanni Eckio e della Instituzione dell' Accademia dei Lincei	The Academy.

Enumeratio Insectorum Norvegicorum:— I. Catalogum Hemipterorum et Orthopterorum Continens..... II. Catalogum Coleopterorum Continens III. „ Lepidopterorum „ Quellen zur Geschichte des Taufsymbols und der Glausbensregel	The Royale Université de Norvège à Christiania.
A Philosophical Treatise on the Nature and Constitution of Man, Vols. I. & II. The Theory of the Arts, or Art in relation to Nature, Civilization, and Man, Vols. I. and II..... Civilization considered as a Science	The Author (Geo. Harris, LL.D., F.S.A.)
On the different Styles of Pottery found in the Ancient Tombs in the Island of Cyprus	The Author (Thomas B. Sandwith.)
Narrative of the Discovery of the Central Lakes of Africa (pamphlet)	The Author (J. L. Clifford Smith, Halifax.)
Growth, Culture, and Preparation of Tea in Japan (pamphlet)	C. O. Shephard, U.S. Consul at Leeds.

PERIODICALS.

WEEKLY.

Nature.....	Purchased.
Leader (Australian Newspaper)	Publishers.
Australasian	Publishers.

MONTHLY.

Annals and Magazine of Natural History Geological Magazine.....	Purchased.
Illustrated Australian News.....	Publishers of the "Leader."
Monthly Notices of the Proceedings of the Royal Society of Tasmania (yearly) ...	Royal Society of Tasmania.
Journal of the Chemical Society	Chemical Society.
Monthly Notices of the Royal Astronomical Society	Royal Astronomical Society.

QUARTERLY.

Quarterly Journal of Science ..... Quarterly Journal of Microscopical Science	Purchased.
Quarterly Journal of Geological Society...	Geological Society.
Quarterly Returns of Marriages, Births, and Deaths	Registrar General.

Journal of the Royal Historical and Archæological Association of Ireland...	Royal Historical and Archæological Association of Ireland.
Journal of the Anthropological Institute..	Anthropological Institute.
Proceedings of the Geologists' Association	Geologists' Association.
Zeitschrift für Wissenschaftliche Zoologie	Purchased.
Canadian Journal of Science, Literature, and History.....	Canadian Institute, Toronto.

ANNUALLY.

Philosophical Transactions	Purchased.
Mineral Statistics of the United Kingdom	Director General of the Geological Survey.
Annual Report of the Yorkshire Philosophical Society.....	Yorkshire Philosophical Society.
Proceedings of the Glasgow Philosophical Society	Glasgow Philosophical Society.
Mittheilungen der kais. und königl. geographischen Gesellschaft in Wien	Royal Imperial Geographical Society of Vienna.
Proceedings of the Academy of Natural Sciences of Philadelphia (3 pts. a year)	Academy of Natural Sciences of Philadelphia.
Radcliffe Astronomical and Meteorological Observations	Radcliffe Trustees.
Proceedings of the Royal Society of Edinburgh	Royal Society of Edinburgh.
Transactions of do	
Bulletin of the Essex Institute.....	Essex Institute, U.S.A.
Publications of the Ray Society	Purchased.
Abstract of the Proceedings of the Liverpool Geological Society	Liverpool Geological Society.
Transactions of the Edinburgh Geological Society	Edinburgh Geological Society.
Kongliga Svenska Vetenskaps Akademiens Handlingar	Royal Swedish Academy of Sciences.
Do. do Lefnadsteckninghar	
Ofversigt af Kongliga Vetenskaps Akademiens Förhandlingar	
Natural History Transactions of Northumberland and Durham	Natural History Society of Northumberland, Durham, and Newcastle-upon-Tyne, and Tyneside Naturalists' Field Club.

Proceedings of the Berwickshire Naturalists' Club	Berwickshire Naturalists' Club.
Proceedings of the Liverpool Literary and Philosophical Society	Liverpool Literary and Philosophical Society.
Proceedings of the Boston Society of Natural History Memoirs of do.	Boston Society of Natural History.
Transactions of the Historic Society of Lancashire and Cheshire	Historic Society of Lancashire and Cheshire.
Memoirs of the Royal Astronomical Society	Royal Astronomical Society
Transactions and Proceedings of the New Zealand Institute	New Zealand Institute.
Proceedings of the Warwickshire Naturalists' and Archæologists' Field Club	Warwickshire Naturalists' and Archæologists' Field Club.
Annual Report and Papers of the Associated Architectural Societies	Associated Architectural Societies.
Journal and Annual Report of the Royal Institution of Cornwall	Royal Institution of Cornwall.
British Association Report	British Association.
Annual Report of the Royal Cornwall Polytechnic Society	Royal Cornwall Polytechnic Society.
Annual Report of the Smithsonian Institution	Smithsonian Institution.
Annual Report of the Warwickshire Natural History and Archæological Society	Warwickshire Natural History and Archæological Society.
Annual Report of Harvard College	The College.
Annual Report of Harvard University...	The University.
Annual Report of the U.S. Patent Office	United States Patent Office.
Annual Report of the Hull Literary and Philosophical Society	Hull Literary and Philosophical Society.
Annual Report and Proceedings of the Belfast Naturalists' Field Club	Belfast Naturalists' Field Club.
Annual Report of the Geologists' Association	Geologists' Association.
Annual Report of the Museum of Comparative Zoology at Harvard College, U.S.A.....	Museum of Harvard College, Cambridge, Mass.
Annual Report of the Birkenhead Literary and Scientific Society.	Birkenhead Literary and Scientific Society.

Annual Report of the Sheffield Literary and Philosophical Society	Sheffield Literary and Philosophical Society.
Yorkshire Archæological and Topographical Journal	Yorkshire Archæological and Topographical Association.
Proceedings of the Royal Society	Royal Society.
Smithsonian Miscellaneous Collections ... " Contributions to Knowledge	Smithsonian Institution.
Memoirs of the Manchester Literary and Philosophical Society ..... Proceedings do. (about fortnightly, Oct. to April).....	Manchester Literary and Philosophical Society.
Journal of the Royal Dublin Society (about once a year)	Royal Dublin Society.
Proceedings of the Royal Institution (2 pts. a year).....	Royal Institution of Great Britain and Ireland.
Proceedings of the Zoological Society (4 pts. a year—June, Aug., Oct, April.)	Zoological Society.
Edinburgh Astronomical Observations ...	Royal Observatory, Edinburgh.
Proceedings of the American Academy of Arts and Sciences.	American Academy of Arts and Sciences.
Report of the Smithsonian Institution ...	Smithsonian Institution.
Transactions of the American Philosophical Society ..... Proceedings do. (several pts. a year)	American Philosophical Society.
Abridgments of Specifications of Patents, with Indices	Commissioner of Patents.
Transactions of the Academy of Sciences of St. Louis.....	The Academy of Sciences of St. Louis, U.S.
Oversigt over der Kongelige Danske Videnskabernes Selskabs Forhandlinger	Royal Danish Society of Sciences.
Proceedings of the Royal Irish Academy	Royal Irish Academy.
Journal of the Royal Geological Society of Ireland	Royal Geological Society of Ireland.
Transactions of the Manchester Geological Society.....	Manchester Geological Society.
Transactions of the Leicester Literary and Philosophical Society	Leicester Literary and Philosophical Society.
Constitution and Annual Report of the Leeds Naturalists' Club and Scientific Association	Leeds Naturalists' Club and Scientific Association.

LIST OF OFFICERS AND COUNCIL,

1877–8.

OFFICERS.

President	Rev. J. H. McCHEANE, M.A.
Vice-Presidents	J. I. IKIN, F.R.C.S. T. CLIFFORD ALLBUTT, M.D., F.L.S.
Treasurer	HENRY OXLEY.
Honorary Secretaries	RICHARD REYNOLDS, F.C.S. A. W. RÜCKER, M.A.
Honorary Curator in Geology	A. H. GREEN, M.A., F.G.S.
Honorary Curators in Zoology	EDWARD ATKINSON, F.L.S. T. CLIFFORD ALLBUTT, M.D., F.L.S.
Honorary Curator in Ethnology and Works of Art	J. E. EDDISON, M.D.
Honorary Librarian	J. D. HEATON, M.D., F.R.C.P.

The above officers, with the following gentlemen, form the

COUNCIL.

E. H. CARBUTT.
Rev. JOHN GOTT, D.D.
F. M. LUPTON, M.A.
JOHN MARSHALL, M.A.
W. NICHOLSON PRICE.
JOHN RALPH.
T. SCATTERGOOD.
T. W. STANSFELD.
T. E. THORPE, Ph.D., F.R.S.
W. SYKES WARD, F.C.S.

General Curator	Louis C. Miall, F.G.S.
Assistant Secretary	W. F. Husband.
Curator's Assistant	H. Crowther.

LIST OF MEMBERS AND SUBSCRIBERS,

1876–7.

* *Members deceased, whose shares have not been transferred.*

PROPRIETARY MEMBERS,

EXEMPT FROM ANNUAL SUBSCRIPTIONS.

2	Aldam, Wm., M.A.	Frickley Hall, Doncaster.
3	Armitage, Wm. James	Southgate, London, N.
4	Arthington, Robert	73, Hunslet Road.
1	Atkinson, John William	13, Woodhouse Square.
5	Baines, Edward	St. Ann's Hill, Burley, near Leeds.
6	Barran, John, M.P.	Chapel-Allerton Hall.
20	Battye, James C.	Spring Field, Yeadon.
18	Bilbrough, Alfred	15, Beech Grove Terrace.
8	Binks, Samuel	York Place.
9	Broadhead, Henry	Chapel-Allerton.
10, 11	*Brown, James (2 shares)	
31, 62	Brown, Samuel James (2 shares)	Loftus Hill, near Knaresborough.
13, 14	Calverley, Edmund (2 shares)	Oulton Hall.
15	Charlesworth, C. H.	Settle.
16	Chorley, Henry	8, Park Square.
17	Clapham, Samuel	19, Cookridge Street.
19	Coghlan, William	Oak Villa, Grosvenor Road.
21	Cudworth, John W.	52, Mount Preston.
22	Denison, William Beckett, M.P.	Meanwood Park.
23	*Dibb, Thomas Townend.	
25	Eddison, John Edwin, M.D.	29, Park Square.
26	Ellershaw, John	Oakfield, Kirkstall.
27	Ellershaw, Walter	Hull.
28	Empson, Christopher	Bramhope Hall.
29	Ford, Robert Lawson	Adel Grange.

46	George, Thomas Willington	Gledhow Grove.
33	Goodman, Benjamin	Gledhow House.
34, 35	Gott, Rev. John, D.D. (2 shares)	Woodsley House.
36–8	Gott, William Ewart (3 shares)	Armley House.
61	Greenhow, Thomas Michael, M.D.	Newton Hall.
39	Harding, T. R.	St. Ann's Tower, Headingley.
40	Heaps, John William	Park View Villas, Cowper Street, Leeds.
41	Heaps, Charles Denison	Woodhouse Lodge, Woodhouse Lane.
42	Heaton, John Deakin, M.D., F.R.C.P.	Claremont, Leeds.
44	Hirst, Joseph	Wharfedale Lawn, Wetherby.
45	Holt, Joseph	Wedderburn House, Harrogate.
30	Horsfall, John, M.A., F.R.C.S.	Hillary House.
24	Howgate, William	Park Row.
47	Ingham, Constantine	Clarendon Place.
48	Ingham, William	Belmont, Chorley Lane.
49	Jowitt, John	Harehills, Potternewton, near Leeds.
50*	Joy, William Glover.	
51	Kinnear, Thomas John, M.A.	Horsforth Hall.
52	Latimer, John	St. Mark's Villa, Woodhouse Lane.
55	Luccock, John Darnton	54, North Street.
57	Lupton, Francis	Beechwood, Roundhay.
56	Lupton, Sydney, M.A.	Harrow-on-the-Hill.
58	Makins, Charles	17, Craven Hill, Regent's Park, London, N.W.
60	Marshall, Rev. Edmond Henry	Launceston, Cornwall.
63	Marshall, Henry Cowper	Weetwood Hall.
59	Marshall, Arthur, F.G.S.	Headingley House.

64, 65*	Marshall, J. G., F.G.S., (2 shares).	
67	Marshall, Victor Alexander Ernest, B.A.	Monk Coniston, Ambleside.
66	Marshall, Reginald Dykes	Cookridge Hall.
7	North, John	East Parade.
68	Nunneley, J. A., M.B.	22, Park Place.
69	Rhodes, John	Potternewton House.
70	Shepherd, John	Beech Grove House, Tadcaster.
77*	Smith, John Metcalfe (Trustees of)	
32	Smith, Henry Stooks	Headingley.
71	Tatham, George	Springfield Mount.
72	Teale, Thomas Greenwood	Bentley House, Meanwood.
73	Teale, Mrs.	St. James' Lodge.
43	Tennant, Robert, M.P.	Scarcroft Lodge, Shadwell.
74	Tottie, John William	Coniston Hall, Bell Busk, near Skipton.
54	Waite, James Butler	Belvidere House, New Leeds.
75	Walker, Edward	15, Springfield Mount.
76	Ward, William Sykes, F.C.S.	Denison Hall, Hanover Square.
53	Whiteley, William	Butt's Cottage, Armley.
78	Wilson, Edmund	8, Osborne Terrace.
12	Wilson, Rev. Benjamin	Bank House, Mirfield.

NEW PROPRIETARY MEMBERS,

WITH AN ANNUAL SUBSCRIPTION OF ONE GUINEA.

1	Atkinson, Daniel Hopkin	16, Brunswick Place.
32	Atkinson, Edward, F.L.S., F.Z.S.	Eldon House, Woodhouse Lane.
116	Baines, Frederick	Weetwood Lodge.
2	Balme, E. B. Wheatley	Cote Wall, Mirfield.
95,-7 99, 100 *	Beckett, William, Trustees of (5 shares).	
15	Bilbrough, Joseph Brooks	15, Beech Grove Terrace.
3	Birchall, Edward	Inglemoor House, Moorland Road.
4	Boothroyd, W.	Grove Mill, Headingley.

88	Boswell, J. J. .	Althorp Villa, Spencer Place, New Leeds.
33-4, 84	Brown, S. J. (3 shares) (P)	Loftus Hill, near Knaresborough.
5-6	Brown, William (2 shares)	Bardon Grange, Weetwood.
7	Buckton, George .	Roundhay.
89	Buckton, Joshua .	Carr House, Meanwood.
113	Burkill, Isaac Henry .	Chapeltown.
90	Butler, J. O. .	The Abbey House, Kirkstall.
8	Chadwick, Charles, M.D., D.C.L., F.R.C.P. .	Tunbridge Wells.
9	Chadwick, William .	Arksey, Doncaster.
10	Cliff, Joseph .	Wortley.
14	Conyers, W. H. .	Ilkley.
12, 13*	Cooper, W. J. (2 shares).	
45	Craven, John .	3, Beech Grove Terrace.
98	Craven, Joseph .	Clifton House, Beeston Hill.
77	Crofts, John .	Adel.
17	Curwood, Capel Augustus	Cliff House.
18*	Donisthorpe, G. E.	
19	Fairbairn, Sir Andrew, M.A. .	15, Portman Square, London, W.
20	Farrer, James .	Ingleborough House, Clapham, near Lancaster.
105	Ferguson, William .	Ridge House, Woodhouse Lane.
21	Filliter, Edward, M. Inst. C.E., F.G.S. .	West Mount, Clarendon Road.
87	Gott, Rev. John, D.D. (P)	Woodsley House.
101-3, 106-10, 114-15	Gott, Wm. Ewart (P) (10 shares) .	Armley House.
22	Hall, Thomas .	Heath Cottage, Moor-Allerton.
23	Hargrave, James .	Willaston House, Harrogate.
120*	Hargreaves, S. B.	
16	Harvey, William .	West View, North Hill Road.
24	Henderson, Rev. W. G., D.C.L. .	Grammar School.
44*	Hepper, Joseph Henry .	
26	Hey, Samuel, F.R.C.S. .	Headingley.

104	Holroyd, James	
117	Howarth, Rev. Wm. Lee	Elmwood House.
36	Hudson, Henry .	Oakwood, Roundhay.
37	Hudson, Robert John .	Moorville, Burley-in-Wharfedale.
52	Ingham, Charles Alfred .	Belmont, Chorley Lane.
38	Ingham, Henry Constantine .	23, Lyddon Terrace.
39	Jowitt, Robert Benson .	Elmhurst.
40	Joy, Walker .	3½, Queen Square.
41	Kennedy, Thomas Stuart	Meanwood.
43	Kitson, James .	Elmete Hall, Roundhay.
46	Kitson, J. Hawthorne .	Hyde Terrace.
47	Kitson, James, Jun. .	Spring Bank, Headingley.
48	Kitson, Frederick William	Burley, near Leeds.
50	Leather, J. Towlerton .	Leventhorpe Hall.
91	Ludolf, Herman .	Headingley.
53	Lupton, Arthur .	Headingley.
54	Lupton, Joseph .	The Elms, Chapel-Allerton.
55	Lupton, John .	Moorlands, Headingley.
56	Lupton, Darnton .	The Harehills, Roundhay Road.
57	Lupton, Francis Martineau, M.A. .	Wellington Street.
58	March, Joseph Ogden .	Beech Grove House, Woodhouse Lane.
94	Malcolm, John Cooper .	New Leeds.
59	Margerison, J. L. .	4, Porchester Gate, Bayswater Road, London.
25	Marsden, Mrs. H. R. .	Avenue House, Woodhouse Lane.
60	Marshall, Thomas, M.A.	Highfield, Chapel-Allerton.
61	Marshall, John, M.A. .	Headingley Lodge.
62	Marshall, Stephen Albert, B.A. .	Shaw Lane, Headingley.
27	Maude, Edmund .	Middleton Lodge, Beeston.
63	Meggeson, George .	6, Cromer Terrace.
29*	Milner, Henry B. W.	
64	Nickols, Richard .	West Derby, Liverpool.
65, 66	Nicholson, Albert H. (2 shares) .	Woodside, Belvedere, Kent.

67	Nunneley, A. G.	9, Beech Grove Terrace.
68	Oxley, Henry	Weetwood.
28	Passavant, P. W.	De la Haye House, Chapeltown Rd.
11	Price, William Nicholson	7, East Parade.
30*	Prichard, W.	
93	Ralph, John	8, Brunswick Place.
69	Reynolds, Richard, F.C.S.	Cliff Lodge, Hyde Park.
112	Sagar-Musgrave, J. M.	Red Hall, Shadwell.
92	Scattergood, Thomas	41, Park Square.
118	Schofield, J. C.	Pendleton House, Spencer Place, New Leeds.
119	Schunck, Edward	Gledhow Wood, Gledhow, near Leeds.
51, 121	Stansfeld, T. W. (2 shares)	Weetwood Grove.
70	Stewart, G. M.	13, Queen Square.
71*	Taylor, George	
72*	Taylor, Samuel	
73	Teale, T. Pridgin, M.A., F.R.C.S.	North Grange, Headingley.
74	Teasdale, Washington	Rosehurst, Headingley.
75	Tennant, Robert, M.P. (P)	Scarcroft Lodge, Shadwell.
76	Tennant, Thomas	21, Blenheim Terrace.
78	Tetley, F. W.	Fox Hill, Weetwood.
49	Thorp, John Hall	Broomfield, Headingley.
79	Turner, Richard Bickerton	Bank of England, South Parade.
80	Wailes, William	28, Albion Street.
111	Watson, William	Elmwood, Harrogate.
81, 82*	Whitaker, John (2 shares).	
42	Whiting, John	Regent Villas, Headingley.
83	Wicksteed, Joseph Hartley	3, Eldon Terrace, Woodhouse Lane.
31	Wilkinson, William	St. Mary's Mount, Newton Hill.
85	Wilson, John	Seacroft Hall.
86*	Wilson, Thomas, M.A.	
35	Wood, Richard	Newton Villa, Potternewton.

ORDINARY MEMBERS,

WITH AN ANNUAL SUBSCRIPTION OF TWO GUINEAS.

Armistead, Joseph John	Chapeltown.

Atkinson, J. H.	14, East Parade.
Buckton, Joseph	Moorland Terrace.
Bulmer, John	4, Whinfield Mount, Potternewton Lane.
*Cadman, William	
Croft, Samuel	Armley.
Garlick, William	6, Hyde Terrace.
Hewitt, E. W.	Harrogate.
Ikin, Joshua Ingham, F.R.C.S	19, Park Place.
Martin, Samuel Dickinson	Beech Grove, Harrogate.
Ramskill, Josiah, M.R.C.S.	13, Meadow Lane.
Stratten, Rev. J. R.	Park Square.
Sykes, Henry Marshall	Roundhay.

NEW ORDINARY MEMBERS,

WITH AN ANNUAL SUBSCRIPTION OF ONE GUINEA.

Allbutt, T. Clifford, M.A., M.D., F.S.A., F.L.S.	Lyddon House, Virginia Road.
Baines, Edward Manwaring	6, Ashwood Terrace, Headingley Hill.
Barr, Frederick Horatio	Mount View, Headingley Lane.
Barwick, J. M.	Low Hall, Yeadon.
Bedford, James	Woodhouse Cliff.
Best, William	18, Lyddon Terrace.
Bolland, W. T.	Hunslet Lane.
*Botterill, John	
Bousfield, Charles Edward	St. Mary's Mount.
Briggs, Riley	Springfield Mount.
Carbutt, E. H.	St. Ann's, Burley, near Leeds.
Carter, Robert Meek	Woodhouse Lane.
Corson, George	Headingley.
Dawson, Edwin	Cookridge.
Denny, T. G.	Victoria Road, Headingley.
Dixon, J. W.	5, Cavendish Road.
Downs, T. W. A.	12, Blenheim Square.
Eddison, Frederick	The Manor, Adel.
Eddison, Robert William	Adel.

Firth, William	Burley Wood House.
Ford, J. Rawlinson	Adel Grange.
Ford, T. B. P.	Ilkley.
Gascoigne, F. C. Trench	Parlington Park, near Garforth.
Green, Prof. A. H., M.A.	11, Hyde Park Terrace, Headingley.
*Greenwood, Thomas	
Hargrave, John	St. Ann's Lodge, Burley, near Leeds.
Hepper, John	Clareville, Headingley.
Holt, Henry Percy, C.E., F.G.S., &c.	Cavendish Road.
Holt, Joseph (P)	Wedderburn House, Harrogate.
Illingworth, William	Armley.
*Ingham, Tom	
*Irwin, Edward	
Irwell, Julius	Highfield House, Headingley.
Jackson, Rev. Edward, M.A.	9, Brunswick Place, North Street.
*Jackson, William S.	
Kempe, Arthur	29, Brunswick Terrace.
Kemplay, Miss	St. John's Place.
Lawson, Thomas	Potternewton.
Lawson, John	Bramhope.
Leather, J. W.	
Ledgard, Mrs.	Eller Close, Roundhay.
Lupton, Joseph	Armley.
Manning, H. J.	Broomhill, Chapel-Allerton.
McCheane, Rev. J. H., M.A.	Trinity Parsonage, Hyde Terrace.
March, George	Oaklands, Scarcroft.
Middleton, John William	Mount Terrace, Potternewton.
Morley, Herbert Ogle	20, Victoria Terrace.
Myers, William Beswick	13, Park Square.
Myers, W. C.	Grove House, Roundhay.
Nelson, Henry	St. John's Cottage, St. John's Road.
Nunneley, Thomas	9, Beech Grove Terrace.
Nussey, George Henry	St. Ann's Lane, Burley, near Leeds.
Nussey, Obadiah	Morley House, Headingley.
Nussey, Thomas	Virginia House, Headingley Hill.
Nussey, Samuel Leathley	Potternewton Hall.

Nussey, Peter	Spring Ville, Shaw Lane, Headingley.
*Payne, R. E.	
Peel, Mrs.	Ackworth Park, Pontefract.
Ramsbotham, S. H., M.D.	16, Park Place.
Raynar, John	37, Lyddon Terrace.
Read, Miss	Chapel-Allerton.
*Riley, Thomas	
*Robinson, R. H.	
Rücker, Prof. A. W., M.A.	3, Moorland Terrace.
Sharpe, Miss	21, Victoria Place, Camp Road.
*Simpson, R. W.	
Smith, William Farrar	Hope Villa, Woodhouse Lane.
Somers, Francis	Fountain Terrace.
Stables, James	Horsforth.
Stead, G. A.	Ashwood Villas, Headingley.
*Talbot, George	
Temple, Rev. Henry, M.A.	St. John's Vicarage, Woodhouse Lane.
*Tennant, Joseph Mason	
Thorpe, Prof. T. E., Ph.D., F.R.S.	Headingley.
Titley, Anthony	Manor House, Victoria Grove, Headingley.
Titley, T. A.	Gledhow.
Tottie, J. W. (P)	Coniston Hall, Bell Busk.
Townsley, Richard	6, Springfield Mount.
*Wade, John	
Walker, H. B.	Headingley Hill.
Whiteley, Thomas	Blenheim Square.
Wilson, J. J.	Newton Grove.

ANNUAL SUBSCRIBERS OF ONE GUINEA.

Ambler, T.	9, Park Place.
Appleyard, T. W., Jun.	St. Michael's Tower, Headingley.
Armistead, Edwin	Albion Street.
Armstrong, Prof. G. F., M.A.	24, Hyde Terrace.
Asquith, John Robert	Bond Place.
Aspinall, Aquila	Horsforth.

Atkinson, G. P.	Pontefract.
Atkinson, Miss	Clarendon Road.
Atkinson, Law	Clarendon Road.
Barran, Charles	3, Mount Terrace, Chapel-Allerton.
Barran, John, Jun.	St. Mary's Mount, Newton Hill.
Barran, A.	Chapel-Allerton Hall.
Bartholomew, W. H., C.E.	Ridge Way House.
Battye, R. C.	Newton Grove.
Battye, C.	
Beverley, Mrs.	Grosvenor Terrace, Headingley.
Beverley, Robert	Woodsley Terrace.
Beverley, W. A.	Spring Road, Headingley.
Bickerdike, Rev. John, M.A.	St. Mary's Vicarage, Beckett Street, Burmantofts.
Birchall, Oswald	Kirkstall Grove.
Bland, Miss H.	Lilford House, Queen Square.
Bowers, Henry	Newlay Wood.
Braithwaite, James, M.D.	Clarendon Road.
Braithwaite, Richard Hale	Do.
Brigg, Matthew A.	Oak Bank, Alma Road, Headingley.
Browne, J. C.	48, Briggate.
Bruce, William	Moorland Terrace.
Buckley, J. C.	10, Blenheim Terrace.
Buckton, Richard	Wheatfield Lodge, Headingley.
Buckton, R., Jun.	Bainbrigge Terrace, Headingley.
Bulmer, Charles	Blenheim Lodge.
Burton, F. H.	1, De Grey Terrace.
Burton, J. W.	4, Woodsley Terrace.
Butler, Edmund	Riseholme, Horsforth.
Buxton, Travers	Denmark Hill, London, E.C.
Calvert, John P.	Bank View, Chapel-Allerton.
Campbell, Archibald	23, Hyde Terrace.
Chatwin, E. W.	1, Willow Grove Road.
Cheetham, W.	Woodbottom Cottage, Horsforth.
Clare, W., M.D.	Park Square.
Clark, Miss	S. L. Nussey, Esq., Potternewton Hall.

Clay, J. W.	16, Warwick Place.
Coates, James Irwin, F.R.A.S.	Southend, Headingley.
Conder, Rev. E. R.	1, Newton Grove, New Leeds.
Conyers, Joseph	Castle Grove, Headingley.
Cooke, William	Moorfield House, Moor-Allerton.
Craig, Robert	49, Springfield Place.
Crampton, W. T.	Woodland View, Chapeltown.
Crawford, James	Chapel-Allerton.
Crawford, J. W.	Newton Lane.
Croysdale, John	4, Beech Grove Terrace.
Cuthbert, John	163, Woodhouse Lane.
Davis, Edward	Milton Lodge, Far Headingley.
Dawson, William	Larchfield Mills, Hunslet Lane.
Dixon Henry	6, De Grey Road.
Dolan, John Cass	Lyddon Villas.
Douglas, John	Beech Grove, Oulton.
Dufton, Arthur Wellesley	74, Springfield Place.
Dunfield, James	2, Victoria Terrace, Far Headingley.
Eagland, W. H.	Mount Pleasant.
Ellison, James Edward	10, De Grey Road.
Fairley, Thomas, F.R.S.E.	8, Newton Grove.
Falcon, Thomas	Pudsey.
Farrar, Abraham, Junr.	115, Hyde Park Road.
Fenwick, Thomas	Allerton Hill, Chapel-Allerton.
Fenwick, Charles Richard	Do. do.
Foster, George	Osmondthorpe.
Foster, George	Cardigan Road, Headingley.
Fox, James, C.E.	Woodlands, Horsforth.
Fraser, John	Grove House, Headingley.
Goldie, George, M.D.	Hyde Park Road.
Goodall, Charles	Francis Street, New Leeds.
Granger, Charles	Newton Grove, Chapeltown Road.
Greene, John	Whinmoor, near Seacroft.
Greenwood, Frederick	School of Medicine, Park Street.
Greenwood, W. F.	Park Villas, Hyde Park Road.
Haigh, Rev. C. D., M.A.	3, Woodsley Terrace.
Hall, Frederick	North Street.

Hall, William	Headingley.
Hallilay, John	Burley Road.
Hamilton, R. W.	Cardigan Villas, Shaw Lane, Headingley.
Harding, T. W.	Hillary Lodge, Cavendish Road.
Harding, Anthony Robinson	Sefton House, Louis Street, New Leeds.
Hargrave, Charles	Oxley Hill, Moortown.
Harrison, Miss Edith	7, Allerton Terrace, Chapel-Allerton.
Harrison, R. B.	6, Richmond Road, Headingley.
Harvey, Thomas	Ashwood, Headingley Hill.
Hassé, A. B.	31, Commercial Street,
Hatch, Samuel Charles	Laurel Bank, Shaw Lane, Headingley.
Heald, Alfred William	8, Springfield Mount.
Hebblethwaite, A. R.	12, Blenheim Terrace.
Hebblethwaite, W. J.	Moor Allerton.
Hewetson, H. B.	9, Hanover Square.
Hewson, Charles Thomas	Harehills.
Hezmalhalch, Joseph	Thorner.
Hill, John William, M.A.	Lynton Villa, Mount Preston.
Hindle, J. E.	North Grange, Horsforth.
Hirst, J. A.	Adel.
Hobson, Frederick	49, Briggate.
Holmes, John	Methley.
Holmes, Joseph	92, Meadow Lane.
Huggon, William, F.C.S.	50, Springfield Place.
Humble, Richard	Albion Street.
Hurd, Samuel	Leopold Mount, Chapeltown Road.
Jefferson, S., F.C.S.	17, Virginia Road.
Jepson, E. G.	8, Woodsley Terrace.
Jessop, T. R., F.R.C.S.	32, Park Square.
Jowitt, Miss	Woodfield, Newton Hill.
Joy, Lomas	Harrogate.
Kelly, John	21, Cowper Street.
Kirkby, Thomas	3, Virginia Road.
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